Saeco®

Automatic beverage vending machine

Saeco Group 700 NEW

Model:
ESPRESSO DOUBLE BOILER
ESPRESSO DOUBLE BOILER PLUS
SINGLE BOILER
SINGLE BOILER PLUS

OPERATION AND MAINTENANCE

CE

TYPE: SG700N

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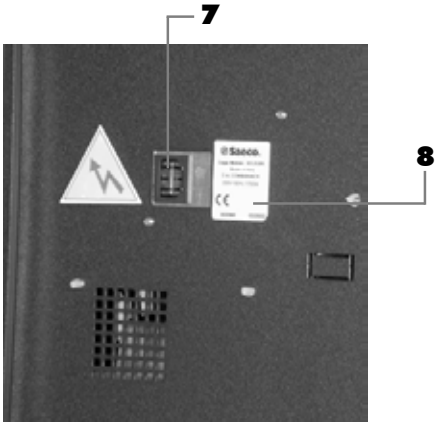
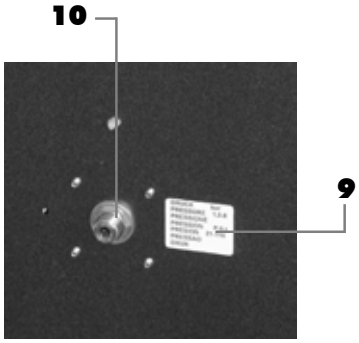
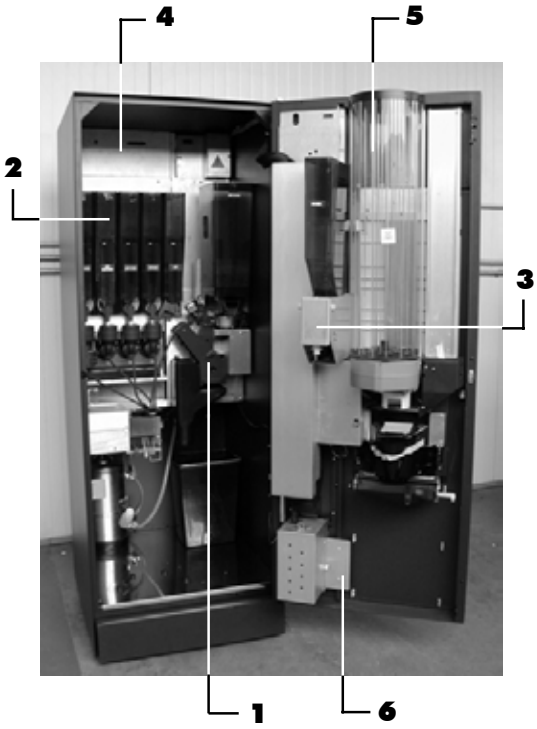
MAIN PARTS







1 Brew group and coffee grinder
2 Vending machine unit
3 Sugar dispensing unit
4 Electronic card
5 Cup dispenser
6 Coiner unit
7 Tray socket
8 Data plate
9 Data plate showing the minimum and maximum water pressure
10 Water mains connection

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1 - INTRODUCTION TO THE MANUAL

1.1 Foreword

Important

This publication is an integral part of the vending machine and shall be read carefully in order to use it in a correct way. Complying with safety requirements is also essential.

This manual contains the technical information necessary to correctly carry out the procedures of operation, cleaning, installation and maintenance of the vending machine SG700NE. Always refer to this publication before carrying out any operation.

Manufacturer: **SAECO International Group**
Via Panigali, 39 - 40041 Gaggio Montano (BO).

This manual shall be kept with care and shall go with the machine throughout its operational life, also during changes of ownership.

If this manual should be lost or worn out, it is possible to require another copy to the Manufacturer or to an Authorized Service Centre. In this event, please indicate the data on the plate located on the rear part of the machine.

1.2 Symbols used

A number of symbols are used in this manual to indicate dangerous situations that require various degrees of expertise.

The symbol is integrated with a message suggesting operating procedures or behaviours and providing useful information concerning the good operation of the vending machine.

Warning

This symbol indicates dangerous situations for the users, supply operators and maintenance technicians dealing with either the vending machine or the product to be dispensed.

Important

This symbol indicates operations that keep the machine in good working conditions, if properly carried out.

Recommended solutions

The symbol indicates the procedures that make the programming and/or maintenance operations quicker.

User

This symbol indicates the user of the vending machine. This person is not authorized to carry out any cleaning or maintenance operation.

Supply operator

It is used to indicate operations to be exclusively carried out by personnel in charge of the vending machine supply and cleaning.
Maintenance operations that require a maintenance technician are not to be performed by the supply operator.

Maintenance technician

It is used to indicate operations to be performed by specialized maintenance technicians only.
He is the only person authorized to keep the KEY TO ACTIVATE THE SAFETY MICROSWITCH which allows disabling the security systems

Read

This symbol indicates that the user should read the instruction manual carefully before operating the machine.

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1.3 General instructions

Warning

Before using the vending machine, read this manual carefully. A good knowledge of the information and instructions contained in this document is essential to use correctly the vending machine and comply with safety requirements.

Warning

For no reason whatsoever shall the supply operator access those parts of the machine that are protected by guards requiring special instruments for their removal.

Some maintenance operations (to be carried out solely by specialised technicians) expressly require that certain safety devices are switched off.

Knowledge and absolute respect, from a technical point of view, of the safety standards and danger warnings contained in this manual, are fundamental for installing, using, servicing and maintaining the machine under conditions of minimum risk.

- The operator of the vending machine has only to carry out those operations he has been trained for, as far as it falls within his competence.
  The user shall have a good knowledge of all operating mechanisms of the machine as far as it falls within his competence.

- It is the buyer's responsibility to ascertain that the machine operators have been trained and informed of all the indications and specifications contained in the documentation supplied. Even so, the operator shall be aware of the potential risks that exist while operating the automatic vending machine.

- Operating reliability and the efficiency of the machine performance are guaranteed only if original spare parts are used.

- The user will be held entirely responsible for any modification he may apply to the machine. All the operations necessary in order to maintain the machine in good working order, before and during use, are to the charge of the operator.

- Tampering with or modifications made to the machine not previously authorized by the manufacturer, release the latter from any liability for damage deriving from, or referable to the above mentioned modifications.

- This manual reflects the state of the art of the automatic vending machine at the moment of the issue on the market; possible modifications, improvements or adjustments that are made to machines that are subsequently marketed, do not oblige the SAECO International Group either to intervene on the previously supplied machine or consider it and the relevant manual to be defective or inadequate.

- However, the SAECO International Group is entitled, when it deems it expedient for valid reasons, to update the manuals already present on the market and send revised information sheets to their customers which shall be kept together with the original manual. Any technical problems that may arise can easily be solved by consulting this manual.

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For further information, contact the dealer where the machine was purchased, or one of the authorized service centres.

When calling, please, give the following information:

- the data registered on the Data plate located on the rear part of the v. m. (fig. 1)

fig. 1

- the version of program resident in the microprocessor - see the adhesive label on the component mounted on the C.P.U. board ref. '1', fig. 2 or, if possible, the version of program shown on the machine display when button 2 is pressed on the CPU board to activate the 'Service' mode (fig. 41).

fig. 2

- the board code appearing on the welding side of the C.P.U. board.

Warning

It is absolutely forbidden to tamper with or modify the data plate.

The SAECO International Group declines all responsibility for injury caused to people or damage caused to things as a consequence of:

- incorrect installation
- inappropriate electrical and/or water connection
- inadequate cleaning and maintenance
- unauthorized modification
- improper use of the vending machine
- non-original spare parts

- In no event will the SAECO International Group be obliged to indemnify any damage caused as a result of the forced inactivity of the machine due to failure.

- Installation and maintenance operations shall be exclusively be performed by qualified technicians.

- Use only specific foodstuffs for use in automatic vending machines.

- The automatic vending machine is not suitable for outside installation. The machine shall be installed in dry places, with temperatures not lower than 1°C and it shall not be installed in places where cleaning is done with water hoses (e.g. large kitchens..).

- If at the time of installation, the usage conditions are different from those established or are subject to change over time, please contact the manufacturer immediately before using the machine. Furthermore, always act in compliance with national or local standards.

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1.4 Operator requirements

To guarantee the safety of the machine three operators with different skills are required:

User

Access to the inside of the machine is forbidden to the user.

Supply operator

The safekeeping of the access key to the inside of the machine is entrusted to the Supply operator by the Maintenance Technician. He has the task of supplying the products, external cleaning, activating and stopping the machine.

Warning

The Supply Operator is not authorized to carry out operations that are indicated as competency of the Maintenance technician in this publication.

Maintenance technician

The only person authorized to intervene and start the programming procedures, adjust, set up and upkeep the machine.

2 - TECHNICAL SPECIFICATIONS

Weight	from 146 to 155 Kg
Overall dimensions	See fig. 3

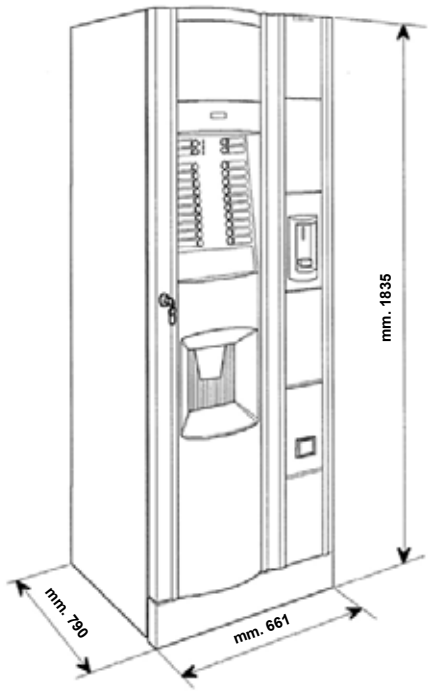

fig. 3

Power consumption	See *Data plate (fig.1)*
Power supply voltage	See *Data plate (fig.1)*
Electric voltage frequency	See *Data plate (fig.1)*
Power cord length	1,600 mm
Water mains connection	3/8 gas
Water mains pressure	from 1.5 to 8 bars (fig.4)

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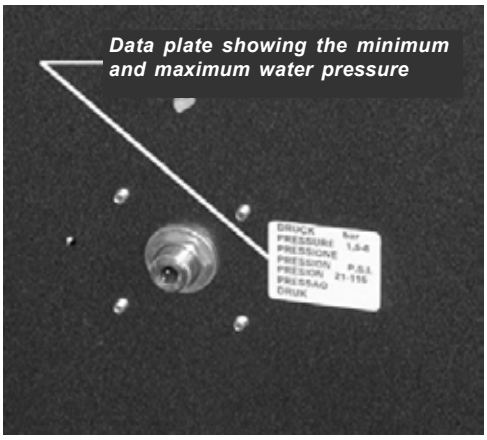

fig. 4

CUP DISPENSER
Suitable for cups with 70-71 mm dia.

BOILER HEATING ELEMENTS
Armoured type:
from 1000 Watts for coffee boiler
from 1300 Watts for instant product boiler

CONTAINER CAPACITY

Coffee beans	Kg 4,0
Instant coffee	Kg 1,0
Granular milk	Kg 2,1
Chocolate	Kg 4,3
Tea	Kg 5,9
Soup	Kg 5,5
Sugar	Kg 5,6
Cups	700
Stirrers	540

3 - SAFETY STANDARDS

3.1 Foreword

In compliance with the Machine Directive 98/37/EEC, Low Tension Directive 73/23/EEC and CE Marking Directive 93/68/EEC, the SAECO International Group has drawn up a technical file on D.A. SG700NE vending machine at its plants, acknowledging during the design phase the rules indicated in the Declaration of Conformity included in the vending machine documentation.

3.2 General safety rules

Warning

- Before using the vending machine, read this manual carefully.
- Installation and maintenance operations shall exclusively be performed by qualified technicians.
- For no reason whatsoever shall the operator access those parts of the machine that are protected by guards requiring special instruments for their removal.
- Good knowledge and absolute respect, from a technical point of view, of the safety standards and danger warnings contained in this manual, are fundamental for installing, using, servicing and maintaining the machine in conditions of minimum risk.

Always disconnect the POWER CABLE before maintenance or cleaning activities.

Do not, under no circumstances, intervene on the machine or remove safety guards before hot parts have cooled!

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- Operating reliability and the efficiency of the machine performance are guaranteed only if original spare parts are used.

- The automatic vending machine is not suitable for outside installation. The machine shall be installed in dry places, with temperatures not lower than 1°C and it shall not be installed in places where cleaning is done with water hoses (e.g. large kitchens..).

- In order to guarantee the performance of the machine, always keep the automatic vending machine in perfect cleaning conditions.

- The SAECO International Group declines all responsibility for injury caused to people or damage caused to things as a consequence of :

• incorrect installation
• inappropriate electrical and/or water connection
• inadequate cleaning and maintenance
• unauthorized modification
• improper use of the vending machine
• non-original spare parts

Furthermore, always act in compliance with national or local standards.

4 - HANDLING AND STORAGE

4.1 Handling and transport

fig. 5

(fig.5)
The transport of the vending machine shall be carried out by skilled personnel.

The vending machine is delivered on a pallet; for handling purposes use a fork lift truck and move it slowly in order to avoid any possible overturning or dangerous oscillations.

☞ **Important**

Avoid:
- lifting the vending machine with ropes or presses
- dragging the vending machine
- turning over or laying the vending machine down during transport
- jolting the vending machine

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With regard to the vending machine, avoid :

- bumping it
- overloading it with other packages
- exposing it to rain, cold weather or heat sources
- keeping it in damp places

4.2 Storage

In the event of storage, avoid any overlapping of several machines, keep them in a vertical position, in dry places with temperatures not lower than 1°C.

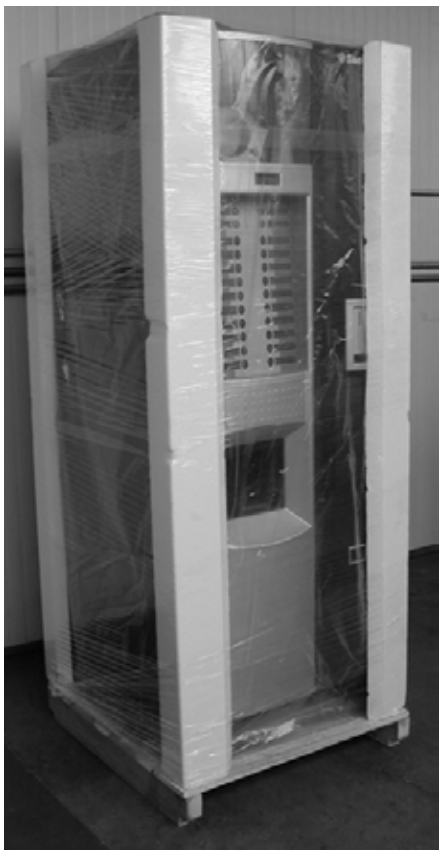

fig. 6

4.3 Packaging

The vending machine is protected by polystyrene angles and by a transparent polypropylene film (fig.6).
The automatic vending machine will be delivered packaged, assuring both a mechanical guard and protection against damage from any environmental agents.

Labels are applied on the packaging, indicating:

- handle with care
- do not turn upside-down
- protect from rain
- do not overlap
- protect from heat sources
- not shock resistant
- type of vending machine and serial number

Important

When the transport is over, the packaging shall be undamaged, which means it shall not:

- show any dent, sign of shocks, distortions or breakages to the external packaging

- show wet parts or signs that could lead to suppose that the packaging has been exposed to rain, freezing weather or heat

- show signs of tampering

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5 -GENERAL TECHNICAL DESCRIPTION

5.1 Permitted use

The vending machine is to be used exclusively for the dispensing of beverages, prepared by mixing foodstuffs with water (by brewing for coffee).
For this purpose, use products that the manufacturer has declared suitable for the automatic distribution in open containers. Beverages are brewed in appropriate plastic cups automatically dispensed by the machine. The sugar stirrer is automatically dispensed.
The beverages shall be drunk immediately and under no circumstances shall they be kept for subsequent consumption.

5.2 Models

The following terminology is used so as to distinguish the various models of automatic vending machines:

SAECO GROUP 700N E PLUS :
version with plastic brew group and 5 instant products, equipped with two boilers and 64 mm grinders.

SAECO GROUP 700N M PLUS :
version with plastic brew group and 5 instant products, equipped with one boiler and 64 mm grinders.

SAECO GROUP 700N E :
version with plastic brew group and 5 instant products, equipped with two boilers and 48 mm grinders.

SAECO GROUP 700N M :
version with plastic brew group and 5 instant products, equipped with one boiler and 48 mm grinders.

Warning

This manual refers to the top-of-the-range model: it is therefore possible to find descriptions or explanations not relating to the machine you have.

5.3 Basic operating concepts

During normal functioning, the vending machine is in standby. By introducing the necessary amount, according to the preset price, and pressing the key relating to the desired beverage, a beverage dispensing cycle is activated. It can be divided in different processes:

CUP DISPENSING

- This is the first operation that the vending machine activates - except for 'without cup' dispensing selection.

- The motor inside the cup dispenser moves the scrolls in order to separate and let the cup fall into the special support fork inside the dispensing outlet.

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SUGAR AND STIRRER DISPENSING

Where provided for and required, a preset maximum dose of sugar is dispensed, with the possibility to stop the machine when the required dose has been reached.

Dispensing is divided in the following phases:

- the gearmotor activates the sugar container screw, dispensing the desired quantity of product into the conveyor tube.
- the dragging motor of the channel is engaged and conveys the sugar into the cup.
- the solenoid is activated, and the stirrer is directly dispensed into the cup through a special channel (fig.9).

INSTANT BEVERAGES

This process takes place only after the dispensing of the cup, the sugar and the stirrer. According to the beverage selected and the model of the vending machine - single or double boiler - the following processes are enabled for the beverage brewing.

- If fitted, the motor mixer is engaged.
- In case of machines with espresso coffee single boiler the solenoid valve for instant products (ref. '1' fig.7) is installed on the coffee boiler and when engaged it conveys the programmed quantity of water into the mixer. Then, the pump (ref. '2' fig. 7) is engaged and, controlled by a special electronic device (volumetric counter ref. '3' fig. 7), it dispenses the programmed quantity of water.

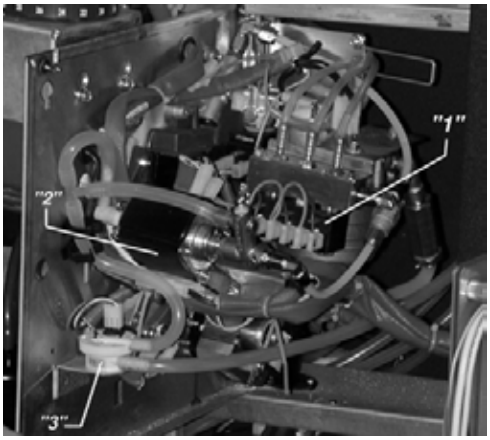

fig. 7

- In case of machines with a double boiler, the solenoid valve for instant products (ref. '1' fig. 8), located on a non-pressurized boiler (ref. '2' fig. 8), is engaged by means of a timer in order to fill the cup with the programmed quantity of water. In this case, the water outflows by falling.

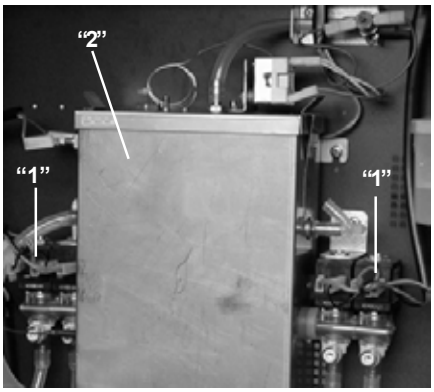

fig. 8

- The gearmotor of instant products actuates the screw so that the latter dispenses the preset quantity of product inside the mixer - for some versions several products can be dispensed in the same mixer -).
- Once the preset quantity of water and powder is dispensed, the mixer is disconnected.

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ESPRESSO COFFEE

This process takes place only after the dispensing of the cup, the sugar and the stirrer.

- the grinder (ref. '1' fig.9) is engaged and runs until the ground coffee dose set by the dosing unit (ref '2' fig.9) is reached.

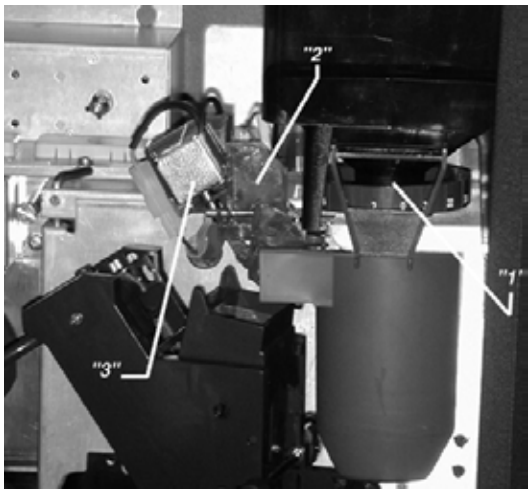

fig.9

- the electromagnet of the dosing unit (ref. '3' fig.9) controls the door opening and the subsequent falling of the coffee into the brewing cup.

fig.10

- the group rotation gearmotor moves the group onto the brewing position and compresses the coffee tablet (fig.10).
- controlled by the appropriate electronic device (volumetric counter ref. '2' fig.11), the pump dispenses the preset quantity of water sucked from the coffee boiler (ref. '1' fig.11).

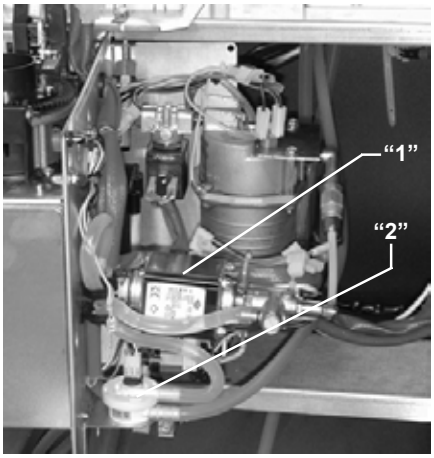

fig.11

- the brew group gearmotor goes back to its rest position while the used coffee tablet is ejected.

According to the type of program set (see programming menu), the above procedure for the grinder and dosing unit engagement can take place in reverse.

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6 - INSTALLATION

6.1 Positioning

The vending machine is not suitable for outside installation. It shall be installed in dry places, with temperatures not lower than 1°C. Furthermore it shall not be installed in places where cleaning is done with water hoses or where there is the danger of explosions or fires.

- If positioned near a wall, there shall be a minimum distance of at least 5 cm from the wall (fig. 12), so as to allow regular ventilation. Under no circumstances cover the vending machine with cloths or similar.

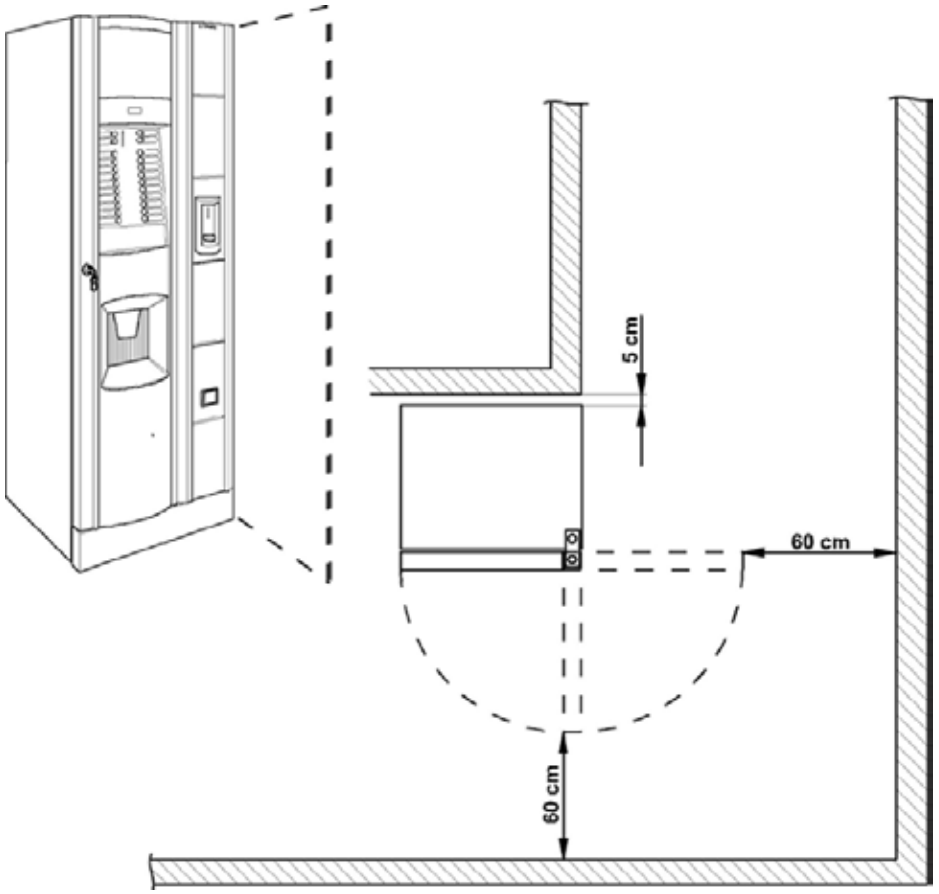

fig.12

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- Position the vending machine, checking the levelling by means of the adjustable feet already assembled on the machine (fig. 13). Make sure that the vending machine does not have an inclination exceeding 2 degrees.

fig.13

The SAECO International Group declines all responsibility for inconveniences due to the failure in observing the above mentioned installation rules.
If installation takes place in safety evacuation corridors, make sure that the machine with the door open assures sufficient space for people to pass by (fig. 11).
In order to avoid the floor to get dirty as a result of accidental spillage of products, use, if necessary, a sufficiently wide protecting device to cover the operating area under the vending machine.

6.2 Receipt

Upon receipt of the automatic vending machine, it is necessary to check it has not suffered damage during transport. If damage of any kind is noticed, immediately place a claim with the forwarder.

An envelope is supplied with the vending machine, called 'CUSTOMER KIT', containing the objects shown in Fig. 14.

- Instruction booklet.
- Powder tank plates and prices in euro.
- Pushbutton panel selection labels.
- Instruction labels.
- Wiring and hydraulic diagram.
- Power cord.
- Safety micro key (Maintenance technician).
- Declaration of conformity.
CUSTOMER KIT

fig.14

6.3 Unpacking

- Free the vending machine from the packaging, cutting the protective film in which it is wrapped, along one of the protection angles (fig.15).

fig.15

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- Remove the vending machine from the pallet, unscrewing the screws that secure it to the pallet (fig.16).

fig.16

- Remove the key from the beverage dispensing outlet (fig.17).

fig.17

Open the door of the vending machine and remove the adhesive tape from the components.

- Remove the polystyrene blocking the product containers (fig.18)

fig.18

Warning:

The packing material shall not be accessible to unauthorized people, as it is a potential source of danger. For the disposal please contact qualified companies.

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6.4 Water mains connection

Before connecting the vending machine to the water mains, make sure the water :

- is drinking - if possible by means of test laboratory certification

- has a pressure ranging between 1.5 bars and 8 bars, otherwise use a pump or a water pressure reducer accordingly

- if not already fitted, install a tap in an accessible position, so as to separate the equipment from the water mains, should it be necessary (fig. 19).

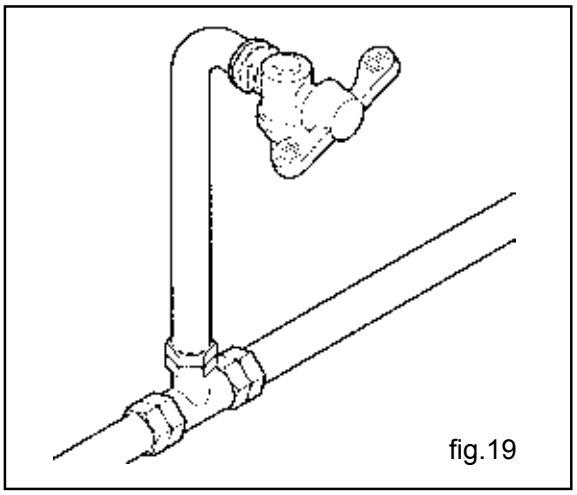

fig.19

- let some water flow out of the tap so that to eliminate possible traces of impurities and dirt (fig.20).

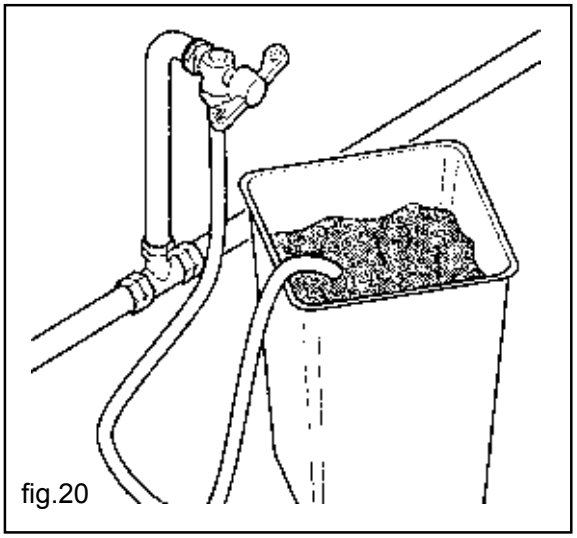

fig.20

- connect the tap to the vending machine, using a copper or nylon pipe, suitable for foodstuffs and for the purpose of bearing the water supply pressure. Should a flexible hose be used, it is necessary to assemble the reinforcement bearing inside, supplied with the machine.

- the connection provided for is a 3/8 gas-type fitting.

6.5 Electric Mains connection

The vending machine is designed to operate with single phase voltage at 230 Volts and is protected by 8A rapid fuses.

We suggest checking the following:

- Ithe mains voltage of 230 V shall not exceed a ± 6% fluctuation
- the power supply must be suitable to the machine
- a diversified protection system shall be connected

The machine shall be earthed in observance with operating safety rules in force.

For this reason, verify the system earth wire connection to ascertain that it is efficient and in compliance with national and European electric safety standards.

If necessary, have the system inspected by qualified personnel

- The vending machine is provided with a power cord (fig.21)

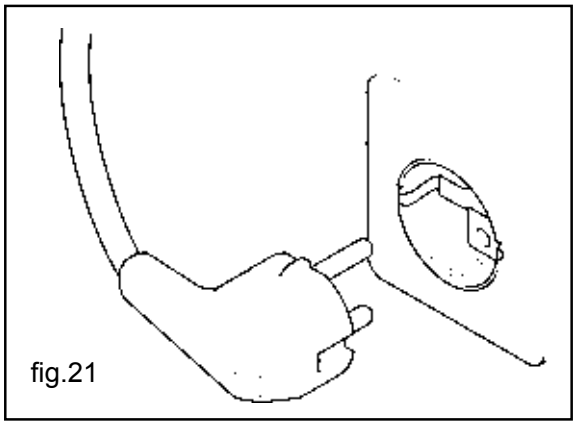

fig.21

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- The sockets that are not compatible with the plug of the machine shall be replaced.
- The use of extensions, adapters and/or multiple plugs is forbidden (fig.22).

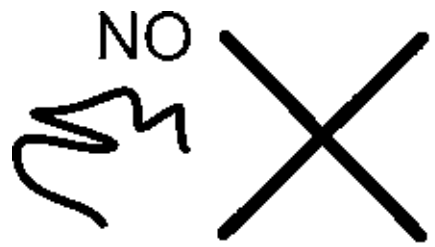

fig.22

6.6 Machine start-up

The machine is equipped with a safety switch (fig. 23) which disconnects the utilities whenever the door is opened, see wiring diagram.
In case of need, therefore, open the door or unplug the installation.

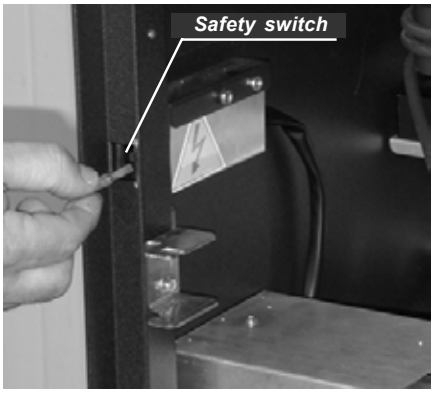

fig.23

Warning

During the setting-up phase, before powering up the machine, make sure you have connected it to the water mains and opened the water tap.

Warning

The power cable plug (ref. '1', fig. 24), as well as the service switch inside the vending machine (ref. '1', fig. 25) remain live.

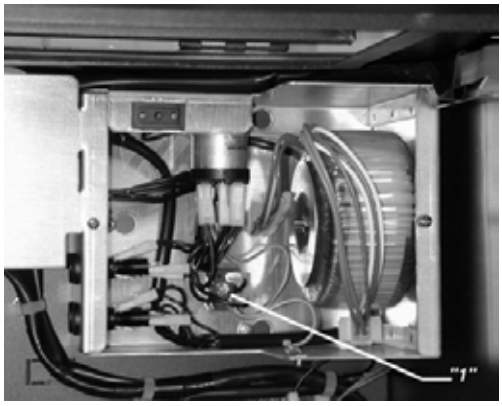

fig.24

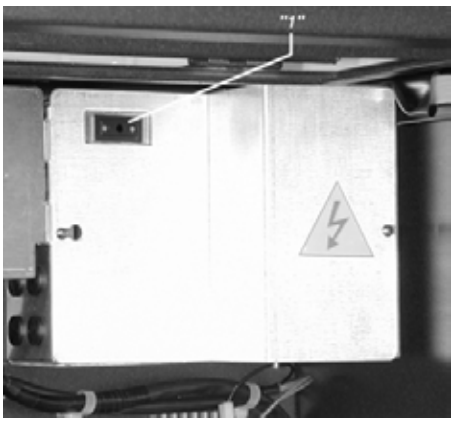

fig.25

- It is however necessary to operate with the door open but the vending machine connected to the mains for some operations

Skilled technicians may operate in this way, by inserting the special plastic key, supplied with the machine, into the door switch, turning it of 90° (fig. 23).

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Warning

The opening and possible switching on of the machine with the door open shall only be performed by authorized and technically qualified personnel. Do not leave the machine unattended while it is open.

Give the key to qualified and authorized personnel only.
Whenever the machine is switched on a test cycle is performed in order to verify the correct position of the moving parts and the presence of water and other products.

6.7 Installation

Important:

When switched on, the machine automatically fills the water circuit and the related boilers. For a correct automatic installation in case of a water softener system being used, it is necessary that the latter is completely filled with water and properly relieved of any air bubbles.

6.7.1 Cleaning and filling of resin-based water softener

Before installing the water softener in the machine and using it, it is advisable to clean the resins and fill the water softener. Therefore, install the water softener already filled with water and cleaned. If you wish to carry out this operation directly in the machine, act as follows:

- in the OPTION menu, disable the self-installation
- insert the pipe of the bottom tap into a container suitable for this purpose
- open the bottom tap and the upper plug of the water softener so as to remove the air bubble (fig. 26)

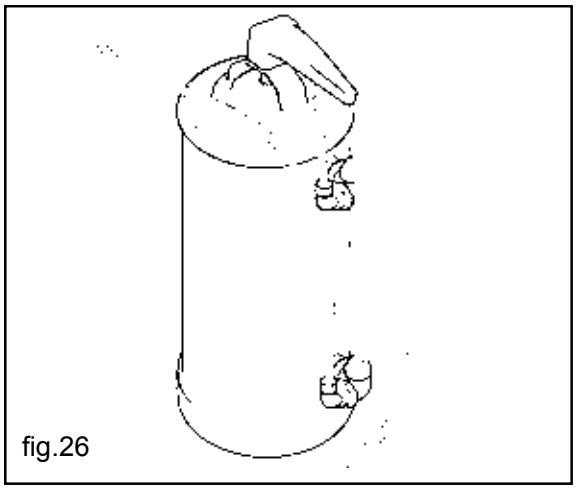

fig.26

- insert the key in the door switch (fig.23)
- let the water softener fill up completely and remove the key from the door switch
- close the upper cap
- insert the key once again in the door switch
- let the water flow out of the drain tube until it is clear (fig. 27)

fig.27

- remove the key and close the tap

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6.7.2 Water circuit filling

First the machine fills the instant product boiler, if any, and the water tank. Then it fills the espresso coffee boiler by performing two brewings of long coffee automatically.

Important:
Before powering the machine on and thus proceeding with the automatic installation:

1. *Make sure that the water softener is filled with water and the air bubbles removed.*
2. *Fill with coffee beans the appropriate container; this is necessary as the machine will perform automatically a few brewings to fill the boiler.*
3. *Load at least the central column of the cup basket.*

NOTE:
If the filling of the boiler is not successful, the machine cannot be set into service. The 'installation failed' message on the display will be shown. Should it be the case, eliminate the trouble and repeat the automatic installation, after repairing the trouble (Section 8 - SERVICE, failure repair).
After carrying out the DIAGNOSIS phase, the machine fills the water circuit of the float tank, the instant product boiler (in the double boiler version) and the brew group boiler in a fully automatic mode. In this phase, the heating resistances of the boilers are automatically switched off. When the machine detects that boilers are loaded, it automatically proceeds to the HEATING phase.

The sequence of operations will be
- insert the special key in the door switch
- at machine start-up, the water tank with float automatically starts to fill up, while the machine carries out the automatic diagnosis.

Important:

Compress the hose connecting the boiler to the water tank several times; keep on doing so until the air bubbles which may have formed have been eliminated (fig.28/29).

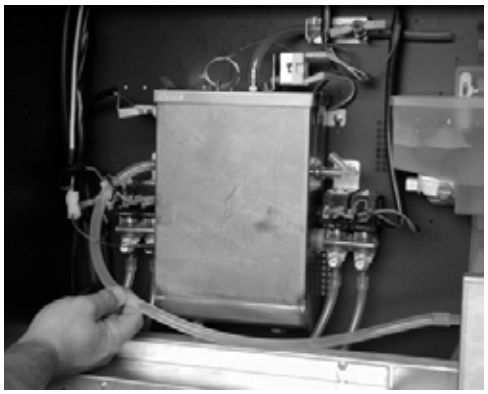

fig.28

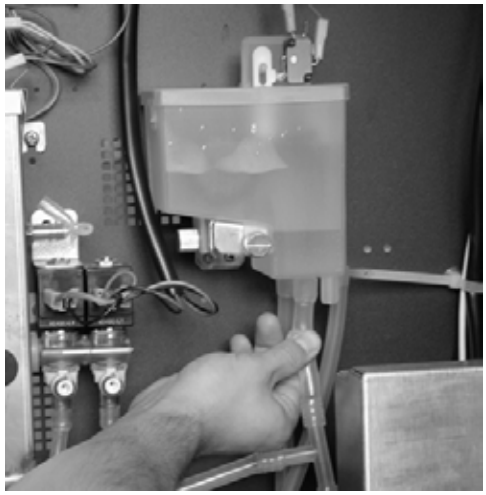

fig.29

During the diagnosis, the following components are engaged:
- the brew group, the nozzle arm and the sugar supply duct, in order to ensure the correct initial position.

- the cup basket to load the first column of cups in the release device

Then, during the initialisation phase:

- the water tank and the instant product boiler, if any, fill up

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- 2 complete brewings of very long coffee are performed automatically in order to fill the brew group boiler.

- once the water circuit is filled, the heating resistances automatically actuate.

Warning

Important: When the boilers are completely filled, carry out several cleanings of the mixers, in order to remove possible residues from the water circuits. N.B.: to enable dispensing tests or cleanings, see the use of the pushbutton panel in 'Service' mode (fig.30).

fig.30

- After performing these operations, wait about ten minutes until the operating temperatures are reached.

6.7.3 Cleaning the parts in contact with foodstuffs

With the vending machine on, perform some cleaning cycles of mixers by pressing the buttons according to service function descriptions, so as to eliminate any residual dirt from the coffee and instant product boilers.

- wash your hands carefully.

- prepare a chlorine based anti-bacterial cleaning solution - it can be purchased at chemists - following the concentrations given on the product instruction label.

- remove all the product containers from the vending machine (fig.31).

fig.31

- remove container lids and product channels (fig.32). Immerse all items into the previously prepared solution.

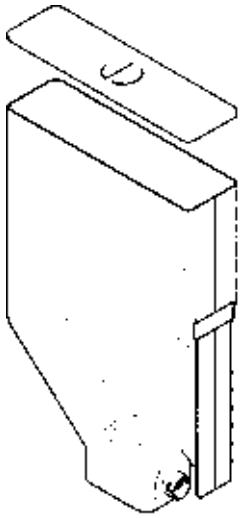

fig.32

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- remove all the instant product channels, water funnels, mixing bowls and impellers and silicone tubes; also immerse these parts in the prepared solution (fig.33).

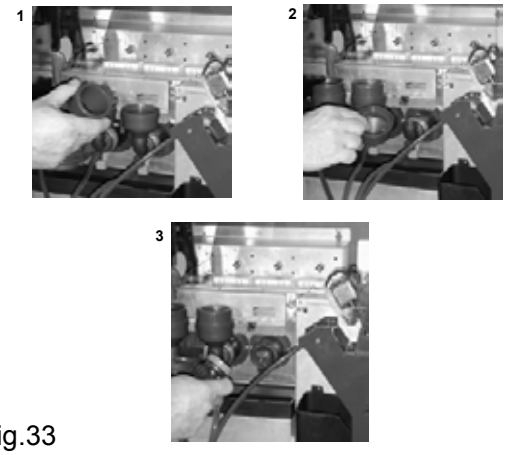

fig.33

- with a cloth soaked with the solution clean the mixer assembly base (fig.34).

fig.34

- the parts shall be left to soak in the solution for the amount of time indicated on the instruction label.

- recover all the parts, rinse them thoroughly, dry them perfectly and proceed with their re-assembly on the machine.

Warning

For further safety, after reassembling the parts, perform some automatic cleaning cycles so as to eliminate possible residues.

6.8 Product loading

6.8.1 Container loading

- Product containers can be loaded without taking them out of their housings. Should it be necessary to take them out, close the sliding door that is mounted on the product channel outlet (fig. 35). Especially in case of coffee beans, the sliding door of the hopper must be closed before removing the container.

fig.35

NB: containers can be loaded without being removed from their supports.

- Lift the lid of each container and load the product (fig.36)

fig.36

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- Make sure there are no lumps; do not compress the product nor use an excessive quantity as to avoid ageing of the product itself. We suggest filling the containers with the quantity of product needed for the consumption estimated within two subsequent loadings

Refer to the TECHNICAL SPECIFICATIONS section to check each container capacity.

Warning

- *Before using the machine, to ensure the proper operation of the container with orientable duct, perform 3 - 4 brewings to fill the channel.*

- *Once the sugar container is filled, make sure the panel is properly reassembled, by checking the click located on one side.*

6.8.2 Label insertion

- The labels indicating the product selections shall be inserted in the special slots according to the order shown in figure 47.

Perform the operation as follows:

- remove the cup column (fig.37)

fig.37

- insert labels following to the order shown and according to the selections used by the machine (fig.38)

- reassemble the cup column

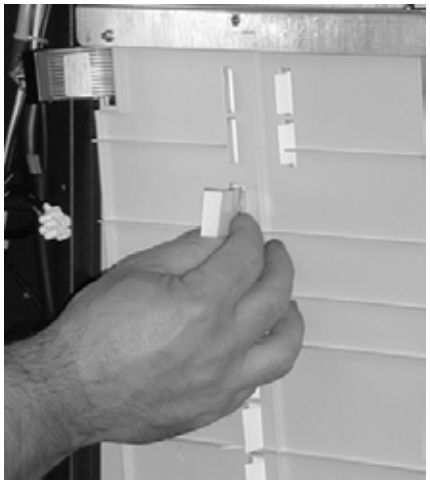

fig.38

6.8.3 Cup loading

Use only cups conceived for automatic vending machines, with a diameter of 70-71 mm, do not compress the cups together while loading.

Important: DO NOT TRY TO ROTATE THE CUP COLUMN MANUALLY.

During installation phase with the cup dispenser completely empty, operate as follows:

- before powering the vending machine, load a column of cups, as long as it is not the one relevant to the dispensing ring (fig.39)

fig.39

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- insert the key in the door switch (see fig.23) and wait until the column is positioned in the cup dispensing ring

- load the other columns counterclockwise

- replace the lid on the cup column.

6.8.4 Stirrer loading

- Remove the metal counter-weight from the stirrer tray (fig.40)

fig.40

- Insert the stirrers with their pack wrapping band in the column and when they are positioned on the bottom, cut and remove the wrapping (fig.41)

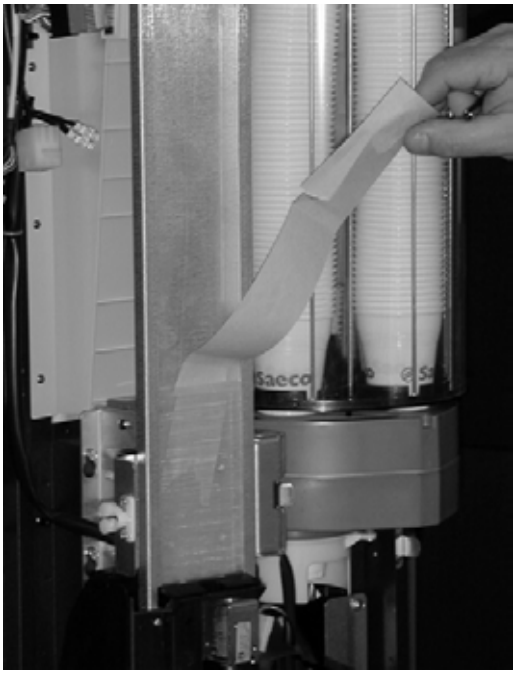

fig.41

- Then, reinsert the metal counter-weight (fig.42)

fig.42

- Make sure the stirrers have no burrs, are not bent and are all placed horizontally.

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6.8.5 Grounds bag insertion

- remove the grounds discharge funnel

- wind the grounds bag end round the spring (fig.43 A)

- fix the bag and the spring on the grounds discharge funnel (fig.43 B)

- refit the grounds discharge funnel

Use short bags which do not touch the vending machine floor.

fig.43

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6.8.6 Payment system installation

The machine does not have a payment system. Any possible damage to the vending machine itself and injury to people resulting from its incorrect installation are the responsibility of the installer of the payment system.

- remove the support bracket from the machine (fig.44)

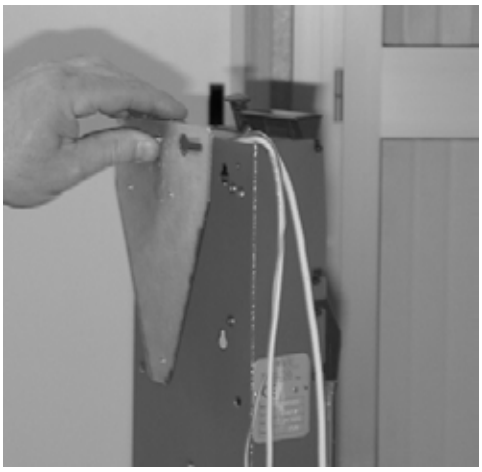


fig.44

- hook the coiner unit to the support bracket (fig.45A).

- fix the support bracket by means of the two knobs (fig.45A).

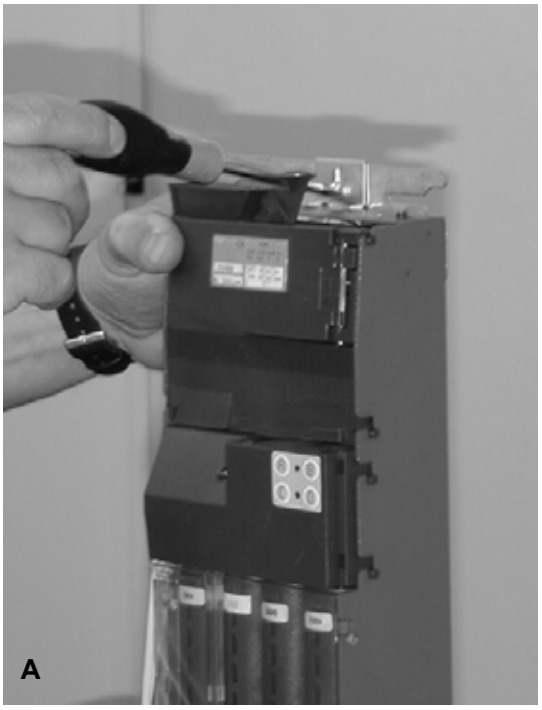
- connect the coiner unit to the CPU board.

NB: The 24Vdc coin validator and the MDB systems have to be directly connected to the CPU board while the executive serial systems have to be connected to the CPU board through the supplied interface cable.

The 12Vdc coin validators require a special interface board in order to be connected to the CPU board.

- Then, access the programming for the correct settings.

Refer to section '7 PROGRAMMING' to verify if the parameter setting is consistent with the system used.



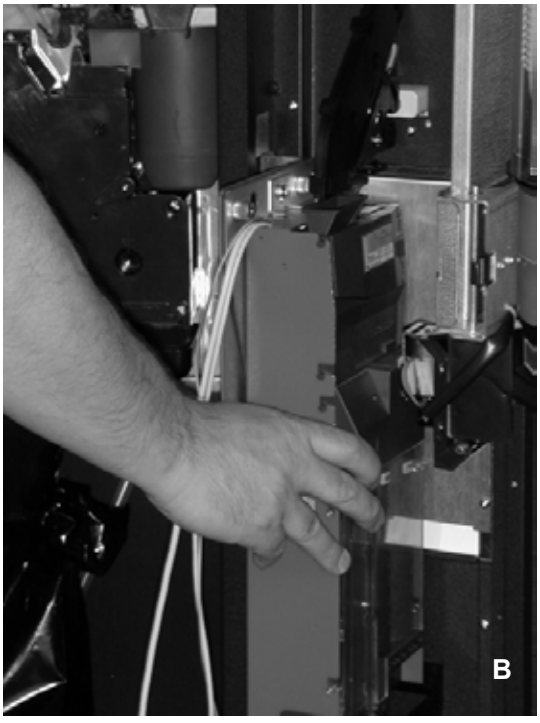


fig.45

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7 - PROGRAMMING

With the programming procedures described in this section, it is possible to set all the parameters related to the machine configuration, the setting of the individual doses and beverage prices and also obtain sales statistical data.

The 'dialogue' between the operator and the machine occurs by means of the 16-digit liquid crystal display and the use of the selection keyboard.

Programming key

The programming function is accessed by pressing button 1 located on the CPU board (fig. 46). The request for the access code to be entered through the keypad (fig.47) will be displayed.

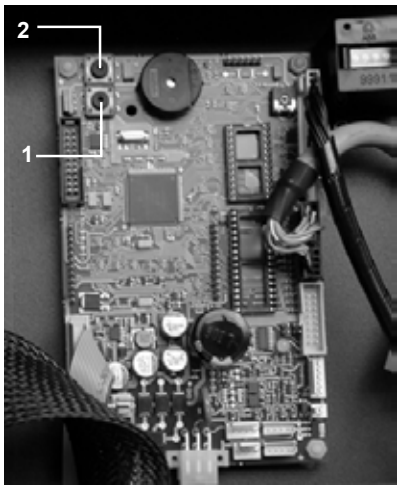

fig.46

- during the installation the maintenance technician can select the language of the display messages, through the OPTIONS menu.

NB: there are seven available languages stored on the eprom kit 'Language Dictionary', from which the language can be selected as mentioned above.

The programming data can be of two kinds:

➢ NUMERICAL DATA
That is all the data that refers to the water, instant products, prices, time and date settings.

➢ LOGICAL DATA
That is all the data that refers to the logical statuses of the OPTION menu that describes the condition - enabled or disabled - of a specific function. The programming is carried out by using some key of the selection keypad (see fig.47) and especially:

• decaffeinated preselection key or **PRG**
exits from the current programming submenu to go back to the original submenu

• key 1 or **+**
has the double function of increasing the value of a selected figure - e.g.: the value of a dose - and/or scrolling forward the list of functions available in the sub menu.

• key 2 or **-**
to decrease a value. This key decreases the value of a selected digit and/or scrolls backwards the list of functions of some submenus.

• key 3 or **Digit / Cancel**
through this key the display cursor moves to the digit to be modified through the above described + and - keys. In some menu, this key resets the parameters.

• key 4 or **Enter** (also identified as E)
to confirm the adjustments or to scroll and confirm the options menu

Once parameter adjustment is completed, press button 1 on the CPU board (fig. 42) to exit the programming mode.

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KEYPAD (fig.47)

The external keyboard besides being used for the selections is also partially used for programming and maintenance.
In particular the keys and their functions are:

Setting - 'Programming' mode

Preselection key D	PRG (exit menu)
Selection key 1	+ (increase/ forward scrolling)
Selection key 2	- (decrease/ backward scrolling)
Selection key 3	DIGIT / Delete (cursor position/ reset)
Selection key 4	ENTER (confirm)

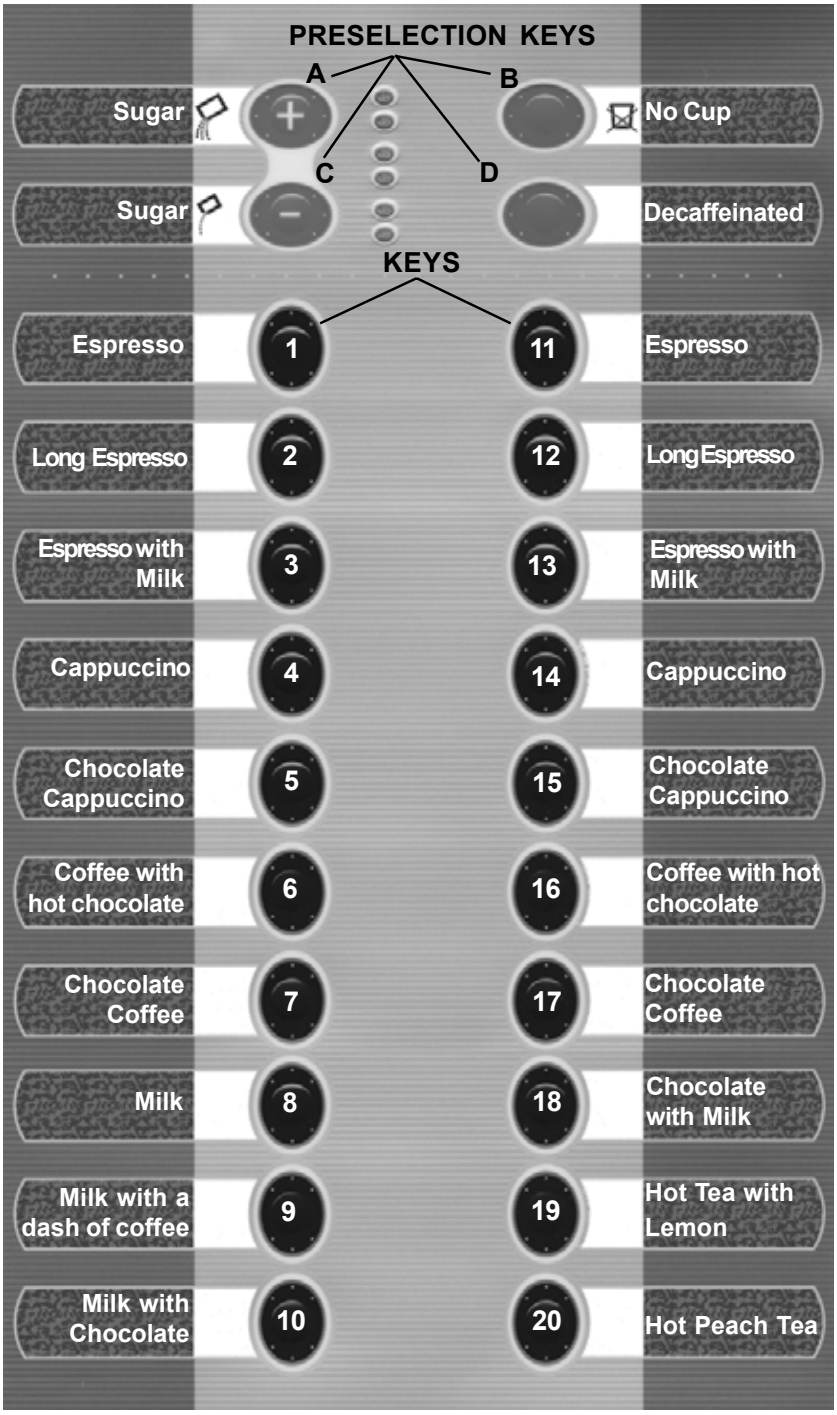

fig.47

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Maintenance - 'Service' mode

Preselection key A	test with water only
Preselection key B	complete test
Preselection key C	test without cup, sugar and stirrer
Preselection key D	failure reset
Selection key 1	brew group rotation / Yes
Selection key 2	milk-choc mixer washing / No
Selection key 3	lyo coffee mixer washing
Selection key 4	Instant product 1 mixer washing
Selection key 5	tea mixer washing
Selection key 6	---
Selection key 7	---
Selection key 8	nozzle arm movement
Selection key 9	---
Selection key 10	electronic counter reading
Selection key 11	machine initialisation
Selection key 12	boiler emptying
Selection key 13	---
Selection key 14	---
Selection key 15	---
Selection key 16	---
Selection key 17	---
Selection key 18	---
Selection key 19	---
Selection key 20	cup only dispensing (if the cup function has been programmed in the recipe key menu)

Structure of job menus

To access the programming it is necessary to know the access code or password.

cod. 00000

The access code consists of five digits.

A cursor will appear under the first digit. Through keys + and - (the first and the second keys on the keypad) increase and decrease the number. With the 'digit' key, the third one, move the cursor.

Repeat the operations until the access code is composed.

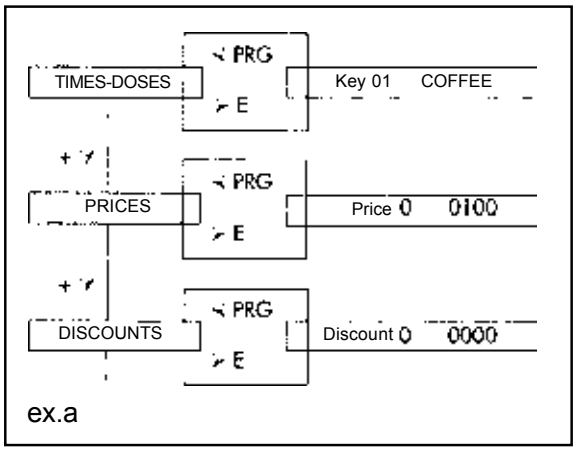
Once the code is composed, press the key 'Enter' (4th) to access the programming mode.

Important

the default code is 00000

Once the code has been entered, the display shows the first main menu function:

- press ENTER to select it
- press + to go to the following function



ex.a

- press PRG to exit the job submenu. (see ex. a)

N.B.: while in the selection mode, the programming mode can be entered

While in SERVICE mode, go first to the SELECTION mode through key 2 on the CPU board (fig.60) and then to the PROGRAMMING mode, through key 1 (fig.60).

The main menu consists of:

TIMES-DOSES	PRICES
DISCOUNTS	PRICE-RECIPE
KEY-RECIPE	OPTIONS
COINS	SALES
TEMPERATURE	CLOCK
DATA FOR MDB	MDB TUBES LOADING
	SAECO CARD
MDB TUBES UNLOADING	

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Press 'PRG' to exit the programming mode until one of the above mentioned functions appears on the display. Then press the programming key on the CPU board (key 1, fig.42) to go back to the selection mode.

The data related to the machine calibration and to the price, coins channel and machine settings can be stored in the SAECO ELECTRONIC KEY (fig.48), thus using the same configuration for other machines of the same model.

fig.48

The SAECO ELECTRONIC KEY is directly connected to the CPU through the CPU board. Check the connector position on the CPU board (ref.'1', fig.49).
Data remain stored in the SAECO ELECTRONIC KEY as long as new setting data are stored on the same key.

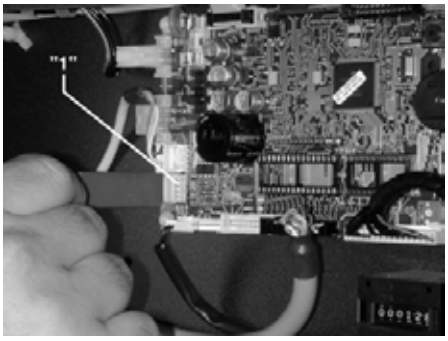


fig.49

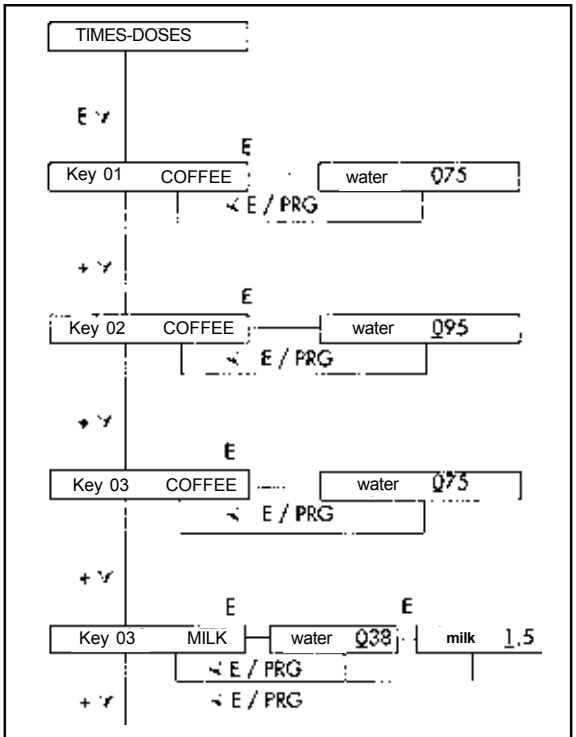
To use the SAECO ELECTRONIC KEY proceed as follows:

- Switch off the machine and insert the SAECO ELECTRONIC KEY into the special connector on the CPU board (ref.'1', fig.49). Then switch on the machine.
- The display will show the message 'CPU > KEY?'
- Pressing key No 4 on the pushbutton panel (ENTER key) to read the machine configuration to be transferred to the SAECO ELECTRONIC KEY
- Press key No 1 (increase key +) to enter the machine configuration with the content of SAECO ELECTRONIC KEY.
- The display will show the message 'KEY > CPU'. Press key No 4 on the pushbutton panel (ENTER key) to confirm.

Warning

Switch off the machine before connecting or disconnecting the SAECO ELECTRONIC KEY on the CPU board.

The following example -'b'- shows how the menu can be scrolled through keys '+, -, Digit, ENTER, PRG'.



ex.b

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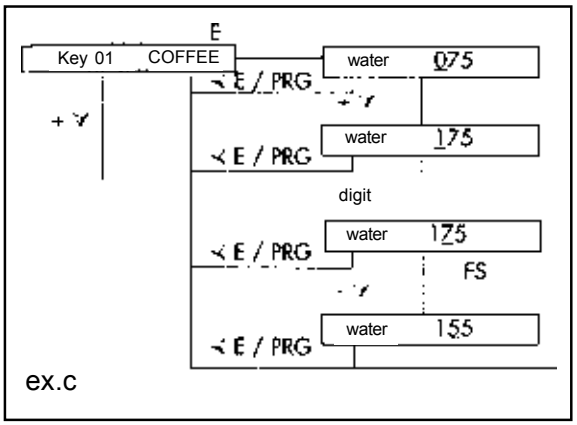
The example below shows how to perform changes in programs (see ex. C)



ex.c

The above diagrams are intended as examples relating to all the menus.

7.1 Machine software updating through eprom

The operating software of the machine can be updated through the appropriate UPDATE EPROM as follows:
Switch off the machine and connect the update eprom to the appropriate base of the CPU board (see fig. 72). Then, switch on the machine: led LD1 should light up for a few seconds and the display should show the message 'PROGRAM FLASH'. Once led LD1 turns off, switch off the machine and then switch it on while the EPROM is still connected. If the machine starts up normally, switch it off and disconnect the eprom. If the display shows 'COPY CONFIGUR.' this procedure will erase the data previously stored by the customer. At the end of the procedure the message 'RESET AUDIT?' will appear: press key No 4 to erase the sales data. Then the message 'CONFIRM?' will appear: press key No 4 to confirm. IIn both cases, press any of the other keys to leave data unchanged. At the end of the procedure the diagnosis phase will automatically start. Switch off and remove the UPDATE EPROM.

7.2 Description of functions

TIMES-DOSES

In this menu, water and product doses for each beverage can be calibrated. Each beverage composition is determined by a basic product recipe (referred to as RECIPE or REC.).

Press ENTER once. The display shows:

"REC. 01 coffee"

Press ENTER once again. The calibration procedure starts from the doses related to the first product composing the first basic recipe:

"water 065"

indicating the water dose, related to the espresso coffee product.
Using the keys '+', '-', 'digit', the values of the water dose related to the espresso coffee of recipe No. 1 can be changed.

Press ENTER once again to confirm the set dose. On the display will appear the following recipe product, if any. Otherwise the program will automatically go back to the initial position. The display will show again:

" REC. 01 coffee"

scroll the menu through key '+' and select the next recipe to be modified.
Here follows a list of beverage recipes available in the machine software:

Warning

Recipes actually available in the machine menu depend on the selected options (see OPTIONS section). Here follows the complete list of recipes, regardless of the options selected.

Rec. 01 = strong coffee
Rec. 02 = long coffee
Rec. 03 = coffee w/ a dash of milk
Rec. 04 = cappuccino
Rec. 05 = cappuccino with chocolate
Rec. 06 = moccaccino
Rec. 07 = milk w/ a dash of coffee

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Rec. 08 = milk
Rec. 09 = milk with chocolate
Rec. 10 = lemon tea
Rec. 11 = natural tea
Rec. 12 = natural tea with milk
Rec. 13 = chocolate
Rec. 14 = strong chocolate
Rec. 15 = chocolate with milk
Rec. 16 = hot water
Rec. 17 = only cup
Rec. 18 = strong lyophilised coffee
Rec. 19 = long lyophilised coffee
Rec. 20 = lyophilised coffee w/ a dash of milk
Rec. 21 = lyophilised cappuccino
Rec. 22 = lyophilised capp-choc
Rec. 23 = lyophilised moccaccino
Rec. 24 = lyophilised milk w/ a dash of coffee
Rec. 25 = generic instant product
Rec. 26 = 2nd generic instant product
Rec. 27 = strong barley coffee
Rec. 28 = long barley coffee
Rec. 29 = barley coffee w/ a dash of milk
Rec. 30 = barley cappuccino
Rec. 31 = barley capp-choc
Rec. 32 = barley moccaccino
Rec. 33 = barley milk w/ a dash of coffee

Group time (per brew group rotation):
maximum operating time of the brew group motor.
We suggest not to modify the preset value.

Maximum sugar dose:
time for the maximum sugar dose.

Preset sugar dose (preset):
the maximum sugar dose is divided by the program into No 6 fractions: in this way the preset sugar dose can be adjusted according to the sugar beverages the machine will brew automatically (for ex. 4 fractions out of 6 corresponding to the maximum preset dose). Moreover the final user can adjust the sugar quantity manually, through buttons '+ sugar' and '- sugar'.

Grinder timeout:
maximum grinding time.
The espresso coffee water and the instant products are controlled by the volumetric counter (flowmeter) pulses.
The powder doses of the instant products are expressed in seconds.

PRICES

Up to 10 prices are available and individually applicable to each selection.
Press Enter to access the price table programming; this appears on the display:

“Price 0 00.00”

The vending prices are set using the same procedure used for the dose setting i.e. using the keys '+', '-', 'digit'.
For free vends, you just need setting the vending price to zero.
Press ENTER again to confirm the set value and the next price is displayed:

“Price 01 00.00”

By pressing PRG you return to the PRICES menu.

DISCOUNTS

Up to a maximum of 10 discounts can be programmed - from Discount 0 to Discount 9 - for as many vending prices as there are. Furthermore, it is possible to program a special discount for the exclusion of the cup - indicated with Cup Discount.

Important

Discounts S0-S9 are linked to ranges of time. Thus the 'clock' device on the CPU board is required. The cup discount is available even without clock.

Press ENTER once. The display shows:

“Discount 0 00.00”

by using keys '+', '-', 'digit', the discount can be set.

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Press ENTER again to confirm the set value and the next discount is shown on the display:

"Discount 1 00.00"

By pressing 'PRG' you return to the DISCOUNTS menu.

PRICE - RECIPE

Through this menu each single beverage recipe (referred to as Rec.01, Rec.25) can be linked to the previously set prices (referred to as Pric.0 ÷ Pric. 9).

Press ENTER to go to the sub-menu whose first function allows the operator to program all selections at P0 price; the following appears on the display:

"All at price 0 ? Y/N"

Using the key '+' the desired option is chosen:

Y (=yes) or N (=no)

Select NO to program the single price for each single selection, as follows:

"Rec. 01 = Pric. 0"

using the key '+' or '-' you can scroll the table of prices, from Price 0 to Price 9. Once the desired price is chosen, it must be confirmed by means of ENTER, thus proceeding directly to the programming of the next beverage.

Of course, it is possible to combine more than one selection with the same price.

As before, press the PRG key to exit the sub-menu.

KEY - RECIPE

Through this function it is possible to link each key to a particular recipe selected among the available ones.

Important

Thanks to the preselection key 'D' (fig.xx) usually related to the selection of decaffeinated coffee, the number of available keys on the pushbutton panel doubles (for ex the SG700 is provided with 40 selection keys).

Press ENTER once. The display shows:

"Key 01 Rec. 01"

This means that the first key is linked to the recipe of product No. 01.

Using the keys '+' and '-', the desired recipe number is selected:

Press ENTER once again to confirm the setting and proceed to the programming of the following key.

OPTIONS

This function makes a series of options available in sequence as listed below. Press ENTER to access the sub menu that displays the first option.

For each OPTION it is necessary to set the logical status 'Y' or 'N' that does or does not enable the function.
By using the keys '+' and '-', you change logic values, i.e. the status, from 'yes' (Y= enabled) to 'no' (N= disabled); using the keys '+', '-', 'digit', you change numeric values.

By pressing ENTER again, you confirm the preset value and the next option is displayed. By pressing PRG again, you go back to the 'OPTIONS' menu.

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List of the options available in sequence:

EURO symbol dis. = when this function is enabled the Euro symbols is displayed together with prices.

Installation = when this function is enabled (Y) the machine starts automatically the self-installation process (automatic boiler and water circuit filling). On the contrary, when the function is disabled (N), the process has to be manually started by the operator (in the SERVICE mode).

Tank = in case of 'autonomous tank kit', when this function is enabled (Y), priming pump operating times are properly controlled.

Preselection = when this function is enabled, by pressing the preselection key 'D' (fig.47) the number of pushbutton keys doubles, thus increasing the number of available beverages.

Natural tea = through this function the lyophilised natural tea-based recipes are available: 'Natural tea' and 'Natural tea with milk' by excluding the 'tea flavour' instant beverages.

Instant product 1 = when this function is enabled it is possible to select a generic instant beverage instead of the 'lyophilised/barley/decaffeinated' product.

EV hot water = this function enables a 'supplementary solenoid valve kit' for the brewing of hot water only; if there is no kit, the function enables the hot water brewing through the tea mixer.

Configuration STD = through this function it is possible to select one of the preset machine configurations which allow a different use of the instant product containers installed (see table and figure on pages 36/37).

Cup function = enables/disables the preselection key 'B' (fig. 47) which allows the final user to have the beverage brewed without cup (brewing into mugs).

Instant grinding = for the instant grinding of coffee beans during brewing.

Stirrer always = this function enables the stirrer dispensing at any type of brewing (including the instant product brewing).

Stirrer-Unsweetened = this function enables the stirrer dispensing even in case sugar is not requested (for ex. unsweetened coffee).

Motor delay = this function reduces the engaging delay, which can be programmed on instant product motors.

Milk first = in case of coffee w/ a dash of milk selection, if this function is enabled (Y) milk is brewed before coffee, if disabled (N) milk is brewed after coffee. For ground coffee only.

Coffee first = when this function is enabled (Y) the powder instant coffee is brewed before the relevant water dose; when disabled (N) coffee is brewed together with water.

Barley first = when this function is enabled (Y) the powder instant barley is brewed before the relevant water dose; when disabled (N) barley is brewed together with water.

Lyo prewarming = this function enables the water circuit prewarming for decaffeinated or lyophilised coffee brewing. Every time the lyo coffee is required the v.m. brews 30 cc of pre-warmed water. This water is not brewed if during the previous 3 minutes, the machine brewed lyophilised or decaffeinated coffee.

Milk prewarming = enables the water circuit prewarming for brewings of 'coffee w/ a dash of milk', coffee beans or instant coffee-based. Every time a coffee w/ a dash of milk is required the v.m. brews 30 cc of pre-warmed water. This water is not brewed if during the previous 3 minutes the machine performed any milk-based brewing.

Permanent credit[2] = option to display the credit until it is extinguished (Y) (set the Multivend option on Y).

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[2] *(The two functions are related; entering 'N' for the Multivend option, any Permanent Credit operation will automatically be void)*

Executive = enables (Y) the executive coiner - set Y also for the validator option

Change-giving function = option to give the change - with the system COGES and RUBBINI - SAECO CARD, set Y

ECS differentiated = to be enabled (Y) when the COGES ECS system with differentiated prices for keys-coins is used. Leave 'N' with non-ECS systems. It is not necessary to set the codes 241, 242, 243 etc. on the machine.

MDB- ICP system = enabling function (Y) for coiners with MDB-ICP communicating protocol

Master/Slave = enabling function (Y) for Master/ Slave protocol. This option enables to v.m. to operate with the same EXECUTIVE payment system.

Multi-vend[2] = option to display the remaining credit for 3 minutes (Y) or reset it (N) at the end of the beverage brewing

Price Holding = enabling function (Y) for systems with Price HOLDING protocol.

Clock = enables the clock - by kit When the function is enabled the message 'CLOCK' is displayed on the main menu.

Language = to select the language to be used in display messages.
Select the desired language through programming key '+' (selection key 1) and confirm by pressing 'Enter' (selection key 4). Switch off the machine and connect the update eprom to the appropriate base U4 on the CPU board (See fig.72). Then, switch on the machine: messages 'LANGUAGE UPDATING' and 'LANGUAGE UPDATING OK' should appear. At the end of the procedure, switch off the machine and remove the eprom from the base.

Decimal point = to establish the number of decimals to be displayed in prices.

Pump timeout = to set the espresso pump maximum operating time: 40 sec (Y) or 120 sec (N).

Cleaning = enables the automatic cleanings - available with the clock device.

Cleaning cycle = enables, without 'clock' device, a cleaning of the mixers 30 minutes after the machine has been powered. A second cleaning cycle will follow if no beverages are dispensed within the following 6 hours; at this point the cleaning time restarts from the last beverage dispensed. Consequently, one daily cleaning of mixer is guaranteed.

Cleaner * = adjustable step-down counter, with indication for the water softener resin regeneration.

*Grinders** = adjustable step-down counter, with indication for the grinder replacement.

*Filters** = adjustable step-down counter, with indication for the coffee filter regeneration.

* *(In any event, they do not stop the vending machine operation)*

Code = new programming access code.

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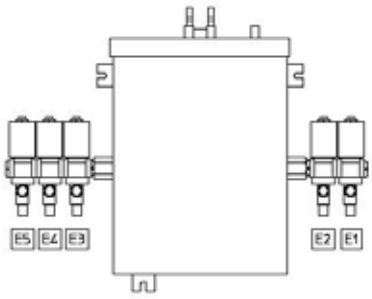
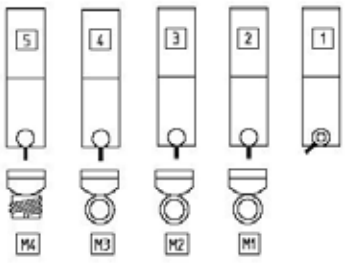
Configuration of machines with double boiler =

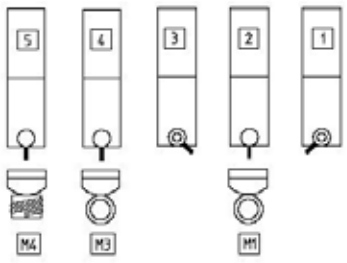
Configuration	E.V.	Box	Product	Mixer
STD	E1	1	Milk	M1
	E1	2	Chocolate	M1
	E2	3	Instant product 1 / Barley*	M2
	E3	4	Decaff / Instant product 2**	M3
	E4	5	Instant / Nat. Tea***	M4
	E5	-	Hot water****	-
DC	E1	1	Milk	M1
	E1	2	Chocolate	M1
	E1	3	Chocolate2	M1
	E3	4	Decaff / Instant product 2**	M3
	E4	5	Instant / Nat. Tea***	M4
	E2	-	Hot water****	-
DL	E1	1	Milk	M1
	E1	2	Chocolate	M1
	E1	3	Milk2	M1
	E3	4	Decaff / Instant product 2**	M3
	E4	5	Instant / Nat. Tea***	M4
	E2	-	Hot water****	-

*'Instant product 1' option allows the Generic Instant 1 to be replaced with Barley
**'Instant product 2' option allows the Decaff to be replaced with generic instant product
***'Natural tea' option allows instant tea to be replaced with natural tea
****With option EV Hot water = YES





STD CONFIGURATION



DC CONFIGURATION
DL CONFIGURATION

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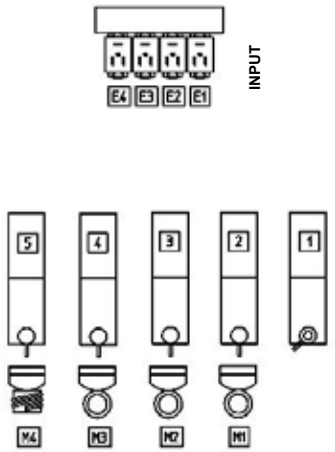
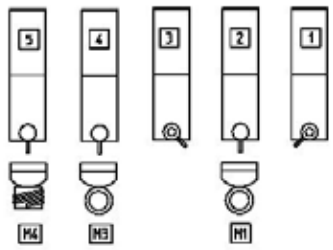
Configuration of machines with single boiler =

Configuration	E.V.	Box	Product	Mixer
5S	E4	1	Milk	M1
	E4	2	Chocolate	M1
	E3	3	Instant product 1 / Barley****	M2
	E2	4	Decaff, Lyo, Barley / Instant product 2	M3
	E1	5	Instant / Nat. Tea**	M4
5DC	E4	1	Milk	M1
	E4	2	Chocolate	M1
	E4	3	Chocolate2	M1
	E2	4	Decaff, Lyo / Instant product 1*	M3
	E1	5	Instant / Nat. Tea**	M4
	E3	-	Hot water***	-
5DL	E4	1	Milk	M1
	E4	2	Chocolate	M1
	E4	3	Milk2	M1
	E2	4	Decaff, Lyo / Instant product 1*	M3
	E1	5	Instant / Nat. Tea**	M4
	E3	-	Hot water***	-
4S	E4	1	Milk	M1
	E4	2	Chocolate	M1
	E2	3	Decaff, Lyo, Barley / Instant product 1*	M3
	E1	5	Instant / Nat. Tea**	M4
	E3	-	Hot water***	-

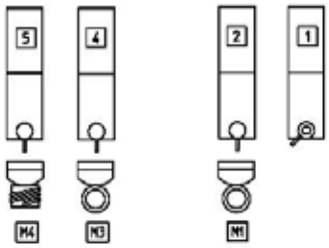
*'Instant product 1' option allows the instant product 1 to be replaced with barley
**'Natural tea' option allows instant tea to be replaced with natural tea
***With option EV Hot water = YES
****'Instant product 2' option allows the Decaff to be replaced with instant product 2



5S CONFIGURATION



50C CONFIGURATION
50L CONFIGURATION



4S CONFIGURATION

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COINS

This menu is accessed for programming coins - from coin 1 to coin 8 - in order to make them compatible with the system used; therefore verify that the coiner channels correspond to the machine channels.

Pressing ENTER once, this appears on the display:

“Coin 01 000.50”

by using the keys '+', '-', and 'digit' you can change the values.
By pressing ENTER, you confirm the adjustment or in any event the value displayed and then pass on to the next coin. In particular:

“Coin 07 000.00”

This channel is used for setting the value for the obliterator cut or the token, using the specific interface kit.
Press PRG to go back to the COIN menu.

SALES

This function enables access to all statistics of sale audited by the machine.
Confirming by means of ENTER, you sequentially enter the following menu of statistics and related management thereof.
By pressing the key '+' you can scroll through the menu described until reaching the required function; pressing ENTER, you access the first item of the selected function and by continuing to press ENTER you can read the other items, if any:

TOTAL CASH
total cashed for sales prices, which cannot be reset.

CASH
total for sales prices.

DISCOUNT
discounted value total.

OVERPAY
total cashed without sales.

TOTAL COUNT
total count of selections - sales + tests - which cannot be reset.

COUNT
total count of brewing - sales + tests - and total count for each single recipe.

FREE
total count for each single recipe of free brewings - through free sale mechanical key.

TEST
total count for each single recipe of test brewing.

COINS
total for each single coin introduced.

BILLS
total for each single bill introduced - only with MDB.

ERASE ALL
function for resetting all the statistics.

Pressing the PRG key you return to the original menu. To reset the data do the following:

- go to CANCEL
- press ENTER
- COD 0000 will appear on the display
- enter the resetting code, following the standard procedure
- press ENTER
- you will be asked if you wish to change the reset code
- press + if you do not want to change the code
- RESET ? will appear on the display
- confirm by means of the DIGIT key

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At the end of the resetting, press PRG to return to the original menu.
The data resetting code (4 digits) is different from the programming access code (5 digits).

The default code is 0001

Important

If you want to change the default code proceed as follows:

- press ENTER when you are asked if you want to change the code
- the old code will be displayed
- use the keys '+', '-' 'digit' to compose the new code
- confirm using ENTER on completion

TEMPERATURE

This menu enables the adjustment of the operating temperature of the coffee boiler and instant product boiler in case of machines with double boiler.
By pressing ENTER, the following appears for example:

"temp. H2O Coff.085"

by pressing ENTER again the following is displayed:

"temp. H2O Inst. 102'"

by using the keys '+', '-' and 'digit' you can increase or decrease the temperature of water inside the respective boilers.
In any event the machine is provided with safety devices that prevent that the maximum temperature values are exceeded.

CLOCK

The relevant CLOCK management menu is enabled through option 'CLOCK Y/N' in the OPTIONS menu.

In the CLOCK menu date and time can be set, as well as the switching-on and discount time ranges, and the cleaning times. The appropriate kit is required to enable the CLOCK function.

DATA FOR MDB

This menu appears when the MDB-ICP(YES) option is included and enables the relevant payment configuration.

By pressing ENTER the following is displayed:

'maximum change'

'coin change'

'coins allowed: from 1 to 16'

'bills allowed: from 1 to 16'

MDB TUBES LOADING

This menu appears when the MDB-ICP (YES) option is included and enables the filling of the 'change giving' tubes of the coiner.

By pressing ENTER the following is displayed:

"Key 3 to end"

Now, it is possible to insert the coins in order to reload the 'change giving' tubes; once the operation has been completed, press key 3 to exit.

MDB TUBES UNLOADING

This menu appears when the MDB-ICP(YES) option is included and enables the emptying of the 'change giving' tubes of the coiner.

By pressing ENTER the following is displayed:

"T3 for coins from 1 to 16"

SAECO CARD

This menu is available only if a Saeco Card module is detected. In this menu MAXCard and RIFCard can be set.

MAXCARD
Is the maximum value the card can have. Beyond this limit the card is not accepted.

RIFCARD
This is the maximum value the card can have. Beyond this limit the card is still accepted, but will be rejected if a card with a higher amount is introduced.

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8 - SERVICE

The service - maintenance - functions are accessed by pressing the service button (key 2) on the CPU board as indicated in figure 42.

The display will show 'SERVICE', together with the active software version initials.
In the 'SERIVICE' mode the keys of the external pushbutton panel identify the functions illustrated in fig. 61, i.e.:

Preselection key A	test with water only
Preselection key B	complete test
Preselection key C	test without cup, sugar and stirrer
Preselection key D	failure reset
Selection key 1	brew group rotation / no boiler emptying
Selection key 2	milk-choc mixer washing / Boiler emptying
Selection key 3	Lyo coffee mixer washing
Selection key 4	Instant product 1 mixer washing
Selection key 5	Tea mixer washing
Selection key 6	—
Selection key 7	—
Selection key 8	nozzle arm movement
Selection key 9	—
Selection key 10	electronic counter reading
Selection key 11	machine initialisation
Selection key 12	boiler emptying
Selection key 13	—
Selection key 14	—
Selection key 15	—
Selection key 16	—
Selection key 17	—
Selection key 18	—
Selection key 19	—
Selection key 20	dispensing cup only (if the cup function has been programmed in the recipe key menu)

In particular:

- *TEST WITHOUT SUGAR, CUP and STIRRER:* after pressing the key it is possible to use the keypad as in normal service so as to dispense any selection without cup, sugar and stirrer.
- *WATER TEST:* after pressing the key it is possible to use the keypad as in normal service, so as to dispense any selection without dispensing any instant product.

- *COMPLETE TEST:* after pressing the key it is possible to use the keypad as in normal service so as to dispense any complete selection - counted as test dispensing.

☞ **Important**

to cancel a test pre-selection without dispensing beverages you have only to press the service key once again. In this case the vending machine will be kept in SERVICE mode.

- *FAILURE RESET:* this resets the failures registered by the v.m. and launches a subsequent diagnostic control in order to check that there are no other failures. At the end of the diagnostic control the machine automatically exits the SERVICE mode.

- *BREW GROUP ROTATION:* the brew group performs a rotation (ESPRESSO version).

☞ **Important**

In the presence of faults, this key has the function of scrolling through the list of the anomalies memorised by the machine.

- *MIXER WASH 1:* this allows the cleaning of the milk and chocolate mixer.

- *MIXER WASH 2:* this allows the cleaning of the lyophilised coffee mixer.

- *MIXER WASH 3:* this allows the cleaning of the tea mixer.

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- *TOTAL COUNTS:* it allows to display the number of beverages dispensed - general counter. To return to the service mode you have to press the service key again.

- *NOZZLE ARM MOVEMENT:* by pressing this key several times the arm supporting the brewing nozzles moves back and forth.

- *MACHINE INITIALISATION:* by pressing this key, the self-installation of the vending machine starts: boilers and water circuits fill up thus assuring the machine to start operating with the minimum quantity of water in boilers required.

- *BOILER EMPTYING:* by pressing this key the automatic boiler emptying starts. This is important for a proper storage of the machine especially during winter and with temperatures below 1°C.

☞ **Important**

When the boiler emptying is completed, the machine asks if a second cycle has to be started: press key 1 (emptying) to repeat the cycle. Press key 2 (no emptying) not to repeat the cycle and to exit the function.

- *DISPENSING CUP ONLY:* press this key to have one cup automatically dispensed.

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9 - MAINTENANCE

9.1 Cleaning and Loading

Important

In order to guarantee the good performance of the vending machine over time, it is necessary to carry out certain operations regularly, some of which are essential for the purpose of complying with current health regulations. These operations shall be carried out with the vending machine open and off; cleaning shall occur before loading products.

Warning

Wash components with warm water only, without using detergents or solvents that could change the shape and the functionality of the machine. Do not wash removable components in the dish-washer.

During cleaning and maintenance operations do not touch any of the electric parts. Do not clean these electric parts with wet clothes and/or with degreasing detergents. Remove the residue of dust with a jet of dried compressed air or an antistatic cloth.

9.1.1 Daily cleaning

The aim is to prevent formation of bacteria in the areas which come into contact with food. The tools necessary for cleaning are: small brushes, clean cloths and drinking water.

Do the following:

- Wet the cloth and clean all the visible parts in the dispensing area (fig.50 and 51).

fig.50

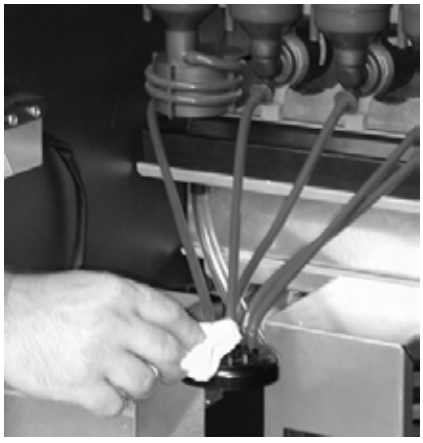

fig.51

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Clean and wash carefully:

- instant product conveyors, suction chamber, ring, water conveyor, mixing bowl, mixer fan (fig.52)

fig.52

- drain silicone pipes (fig.53)

fig.53

- dispensing outlet (fig.54)

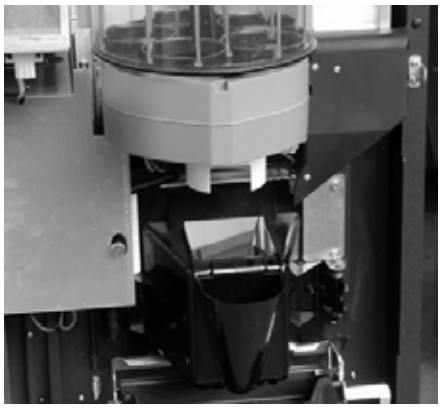

fig.54

Before reassembling, dry all the elements carefully.

- remove the group to easy the cleaning (fig.55) and use a small brush to remove coffee powder residues.

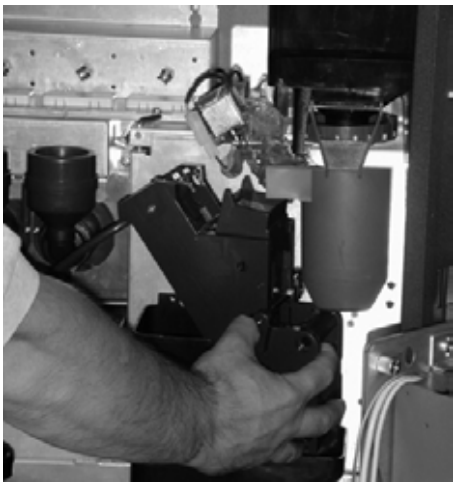

fig.55

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- clean the sugar chute. (fig.56)

fig.56

- empty the liquid waste bin, clean it and/or replace it (fig.57)

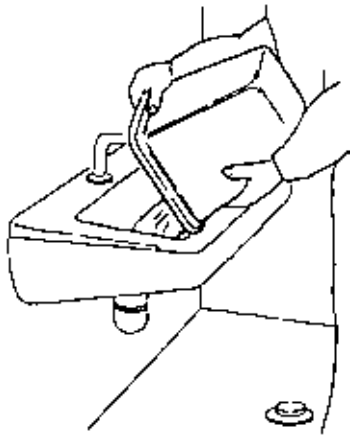

fig.57

- replace the coffee grounds bag (coffee bean versions fig.58)

fig.58

9.1.2 Weekly cleaning

Remove all the containers and clean with a wet cloth all the container support parts, as well as the bottom and the outside of the vending machine, in particular the dispensing area (fig.59).

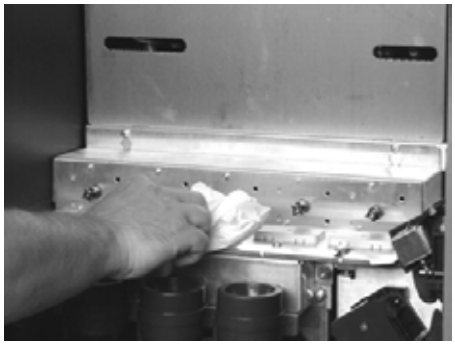

fig.59

9.1.3 Product loading

When necessary, fill the vending machine with special containers with products and/or materials.
For these operations please refer to the initial installation operations described in Section 6.8.

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9.2 Maintenance

	DAILY	WEEKLY	MONTHLY	EVERY SIX MONTHS	EVERY 10,000 COUNTS
Remove and wash the visible parts of dispensing area	■				
Empty the liquid waste bins, clean them and/or replace them	■				
Replace the coffee ground bag	■				
Remove all the containers and clean with a wet cloth all the container support parts, as well as the bottom and the outside of the vending machine, in particular the dispensing area		■			
Disinfect all parts in contact with foodstuffs			■		
Remove and wash the BREW GROUP, lubricate the moving parts with a silicon grease suitable for foodstuffs			■		
Replace gaskets and filters					■

Important

Dry carefully the upper and the lower filters using a jet of compressed air.

Replace gaskets and filters.

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9.2.1 Scheduled and unscheduled maintenance

The operations described in this section are purely indicative as they directly depends to variable factors such as: water hardness, humidity, products used and workload, etc.

Warning

For all operations requiring the disassembly of the machine components make sure the machine is not powered.

Entrust the operations mentioned below to qualified personnel. Should it be necessary to leave the machine not powered, refer to skilled personnel.

For more complicated interventions, such as boiler descaling, a good knowledge of the equipment is necessary.
Disinfect all parts in contact with foodstuffs on a monthly basis using chlorine-based solutions, following the procedures already described in Chapter 4.0.

9.2.2 Brew group maintenance

Plastic group. On a monthly basis remove the group and rinse it with plenty of hot water. Every 5,000 counts or every month lubricate the moving parts of the group with silicon grease suitable for foodstuffs (fig.60):

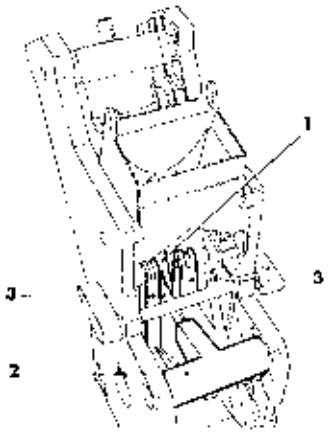

fig.60

- lower filter rod (1)
- connecting rod (2)
- guide rods (3)

Every 10000 counts replace gaskets and filters:

- gaskets

Upper filter (fig.61):

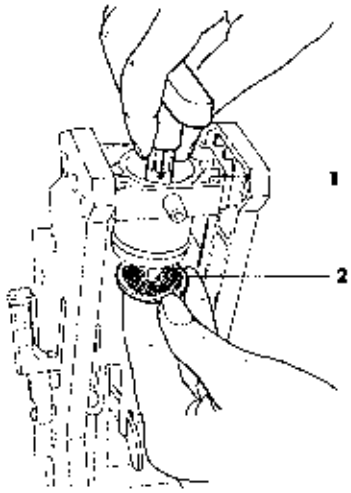

fig.61

- loosen the upper pin (1) using the supplied wrench
- manually unscrew the filter (2)

Lower filter:

- unfasten the two side screws (ref. 1, fig.62) and remove the upper piston lock (2)

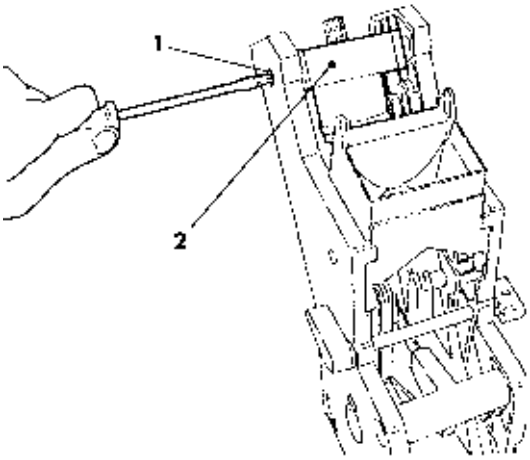

fig.62

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- use the supplied key to rotate manually the lower filter until it is aligned with the cup (fig.63)
- unfasten screw (1) and replace filter (2)
- reassemble in reverse order

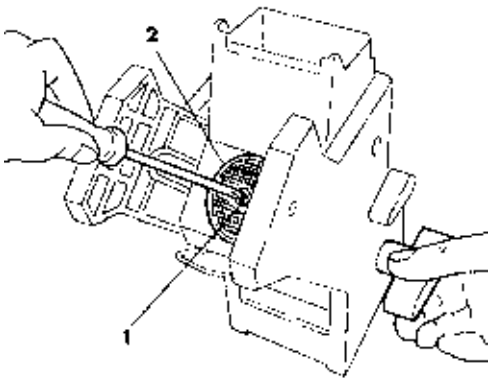

fig.63

Important

Dry carefully the upper and the lower filters using a jet of compressed air.

9.3 Adjustments

9.3.1 Dose and grinding adjustment

The vending machine is delivered with a few standard settings:

- coffee temperature in the cup: 78°C for 38 cc of brewed product
- instant product temperature in the cup: about 70°C
- instant coffee grammage: about 7.2 grams
- instant product grammage: according to the appropriate tables

To ensure the best product performance, check the following:

- ground coffee grammage. Adjust quantity through the screw located on the dosing unit (ref.1, fig.64/65)

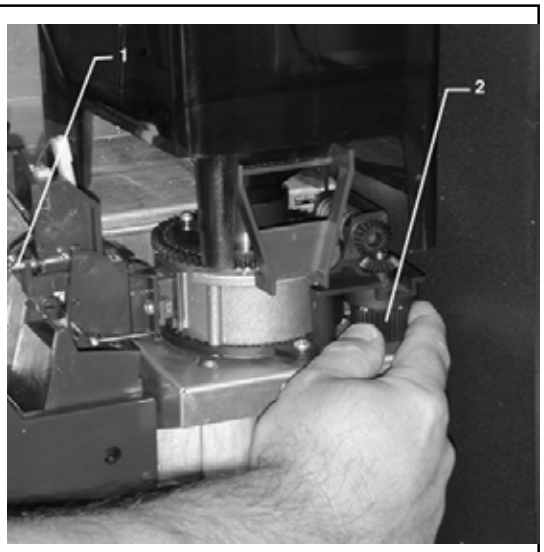

fig.64

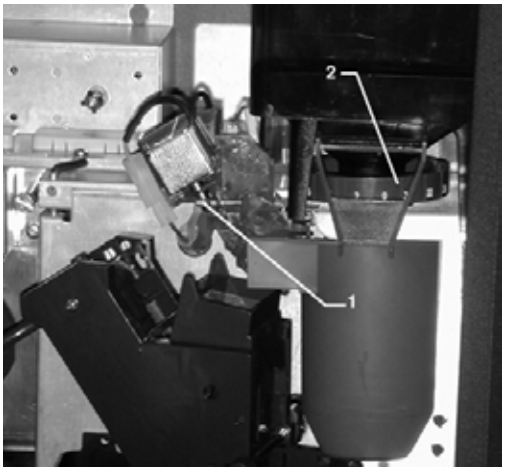

fig.65

- each complete rotation corresponds to an adjustment of 0.15 gr.
- fineness of grinding adjustment. Rotate ring (ref.2, fig.64/65) as required.

After each adjustment, three selections are required before obtaining the selected granulometry.

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9.4 Resin regeneration (where the water softener is provided)

The regeneration of resins shall be performed in relation to the water in the mains network to which the machine is connected.
The table below can be used as a reference:

WATER HARDNESS	NUMBER OF SELECTIONS	
French°	60cc	130cc
10	25000	12500
20	12500	6000
30	9500	4500
40	6500	3000
50	5000	2500

In order to check the degree of water hardness and consequently the time and type of intervention, specific kits available on the market can be used.

The operation can be performed on the vending machine as follows:
- power the machine off
- turn the lower tap taking care to place the related hose into a bucket or better into a drain system (fig.61).

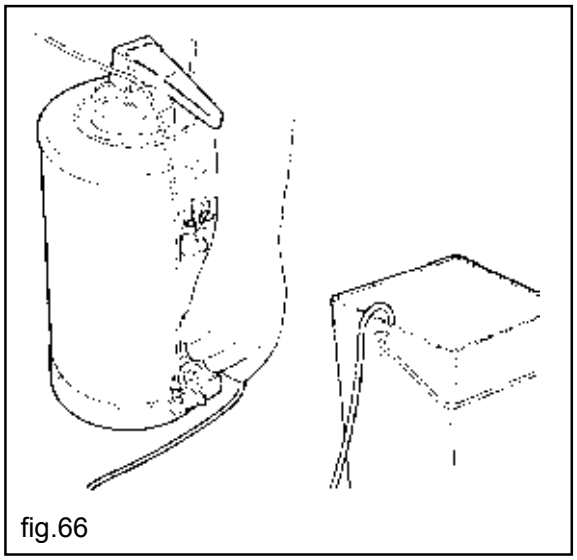
fig.66

- remove the cover and introduce 1.5 kg of normal kitchen salt (fig.67)

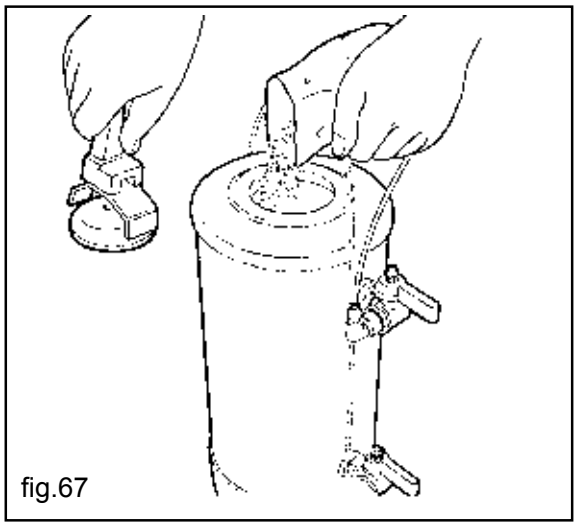
fig.67

- refit the cover
- power the machine on and drain the water until it is no longer salty
- power the machine off and close the tap (fig.68).

This operation takes about 30/45 minutes.

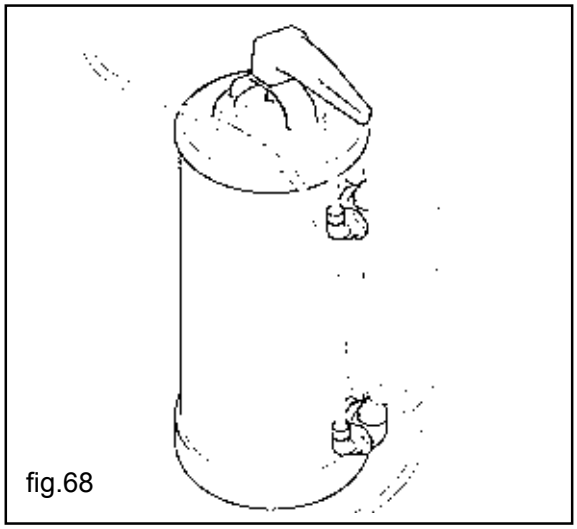
fig.68

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10 - INACTIVITY

If the automatic vending machine remains inactive for a long time it is necessary to take certain preventive measures:

- while the vending machine is on, start the automatic emptying process in the SERVICE mode (see section 8)
- at the end, disconnect the machine either from the electrical and water circuit
- complete the emptying of the instant product boiler and the tank with float, by removing the plug located on the hose along the drain chute
- replace the plug once the emptying has been completed (fig.69)

fig.69

- unload all products from their containers (fig. 70)

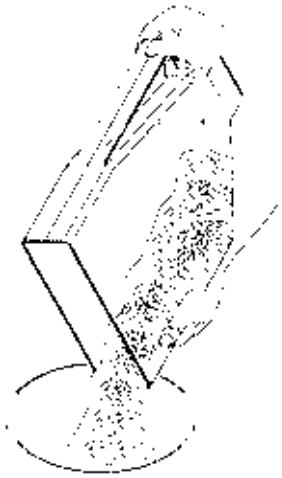

fig.70

- wash all the parts in contact with foodstuffs according to the procedures already described
- empty the liquid waste bin and clean it thoroughly
- remove the grounds bag
- clean all the internal and external surfaces of the machine with a cloth
- protect the outside of the machine with plastic film or a bag (fig.71)

≥1°C

fig.71

- store in a dry and sheltered place at temperatures not lower than 1°C

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11 - DISMANTLING

Empty the products and water as described in the previous section. For dismantling, it is advisable to disassemble the machine parts according to their composition - plastic, metal etc. Afterwards, deliver the divided parts to the specialised companies. If a refrigerating unit is present, give it without disassembling it to companies authorized for the disposal of this particular part.

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12 - TROUBLESHOOTING GUIDE FOR THE MOST COMMON FAILURES OR ERRORS

In SERVICE mode, failures or faults, when present are immediately displayed in the following way (see Key 1 features):

Display message	Possible cause
E01 - CUP	- cup missing - cup microswitch detector failure
E02 - GRINDER	- coffee missing - grinder blocked
E03 - GROUP	- group motor failure - motor position microswitch failure
E04 - ESPRESSO PUMP	- pump failure - coffee solenoid valve - volumetric counter
E05 - INSTANT PRODUCT PUMP	- pump failure - coffee/instant product failure
E07 - SCALE FACTOR	- error in scale factor setting (basic coin) in the coiner
E08 - WATER EMPTY	- water missing - liquid waste bin full - tray microswitch failure
E09 - EEPROM	- EEPROM failure
E11 - NTCPROBE	- brew group probe short circuited or interrupted
E12 - TCOF<70C°	- no warming in coffee boiler
E13 - TSOL<70C°	- no warming in instant product boiler
E15 - CLOCK FAILURE	- clock card defective - wrong setting
E16 - CAPACITY	- decrease in water capacity of hydraulic circuit
E17 - SPOUT MOTOR	- spout motor failure - motor position microswitch failure
NO SERIAL CONNECTION	- no serial coiner connection or waiting for connection

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E16-CAPACITY alarm is just a simple warning, which does not block the machine, and indicates that the pump - solenoid valve circuit has detected a progressive decrease in water capacity. It can also indicate that the volumetric counter (fan) is defective or the existence of calcareous deposits on the solenoid valves. This condition means that a E04-PUMP failure is going to occur.

Other warnings that do not block the machine are also foreseen and have the purpose of advising the user that the regeneration of resins of water softener, the grinders and filters is necessary.
The number of counts beyond which the regeneration is deemed necessary is set in the OPTIONS menu; the display messages are:

- * to indicate error E16 CAPACITY
- α to indicate the regeneration of resins
- & to indicate that filter replacement is required
- $ to indicate that grinder replacement is required
- # to indicate that filter and grinder replacement are required
- % to indicate the regeneration of resins and replacement of grinders
- Ω to indicate the regeneration of resins and replacement of filters
- π to indicate the regeneration of resins and replacement of filters and grinders

If one of the above mentioned symbols is displayed, by entering the SERVICE mode, the message ALARM will appear followed by the symbol for which maintenance is necessary.
The safety device 'group existence' is also provided (microswitch installed on the boiler-group support). When the brew group is not in its position the machine displays SELECT BEVERAGE WITHOUT ESPRESSO COFFEE.

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JP1/JP2 = EXPANSION BOARD CONNECTION
JP3 = DISPLAY CONNECTOR
JP4 = KEYS EXPANSION
JP6 = POWER BOARD CONNECTOR
JP7 = COUNTER
JP8 = 24V VALIDATOR CONNECTOR
JP9 = OBLITERATOR CONNECTOR
J1 = PC PROGRAMMING CONNECTOR
J2 = DATA COLLECTION CONNECTOR
J3 = SAECO ELECTRONIC KEY CONNECTOR
J4 = EXECUTIVE (MASTER) CONNECTOR
J5 = PUSHBUTTON PANEL CONNECTOR
J7 = 24V INPUT CONNECTOR
J8 = MDB CONNECTOR
J9 = CONN. EXECUTIVE (SLAVE) CONNECTOR
S1 = PROGRAMMING KEY
S2 = SERVICE KEY
LD1 = SERIAL PAYMENT SYSTEM CONNECTION LED
LD2 = SUPPLY LED
JMP1 = JUMPER FOR COIN 7
JMP2 = JUMPER FOR COIN 8
TR1 = DISPLAY CONTRAST REGULATION
U1 = EPROM BASE
U2 = CLOCK BASE

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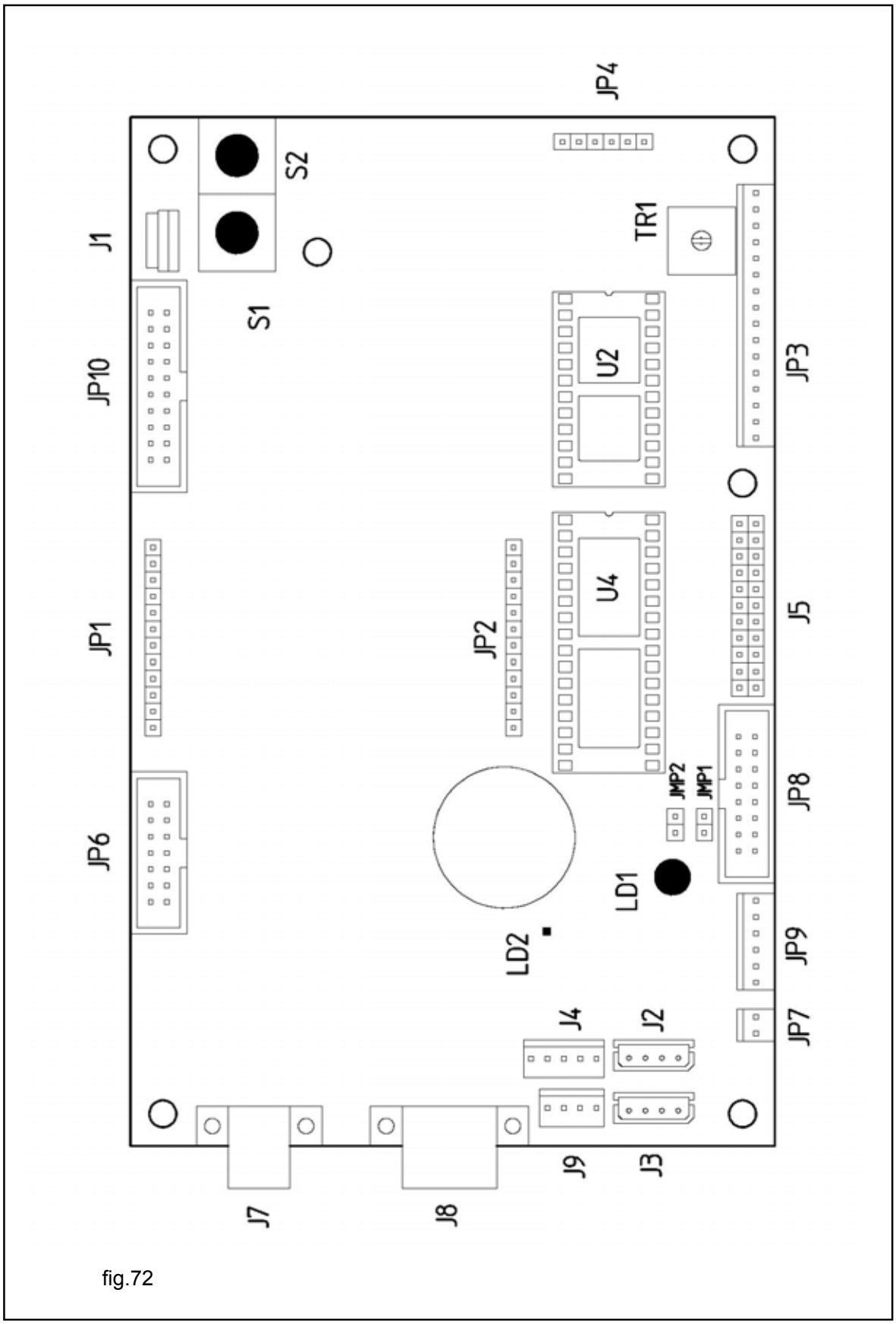

fig.72

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